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ABSTRACT

The rise of the office economy and its impact on vocational education and training (VET) in Australia were examined by replicating the methodology used in Carnevale and Rose's U.S. study on the impact of the new office economy. Both studies took a functional approach to analyzing economic activities and the work force and focused primarily on workers in the middle of their careers. The following were among the Australian study's main conclusions: (1) office work dominates the Australian economy; (2) lower-skilled service jobs lead the Australian economy in terms of job growth, but are characterized by low earnings growth; (3) Australia's work force is polarizing as earnings for "elite" and "good" jobs continue to move further away from earnings for "less-skilled jobs"; (4) university and VET graduates alike are increasingly heading for the office sector; and (5) the office and hospital/classroom sectors represent good jobs in terms of higher average earnings and qualifications. (Fifty tables/figures are included. The following items are appended: a list of Carnevale and Rose categories; the U.S. decision rules adopted for creating five functions; descriptions of the relationships of industries and occupations to functions; tables summarizing "other" response levels; the eight-way occupational division; and additional data.) (MN)

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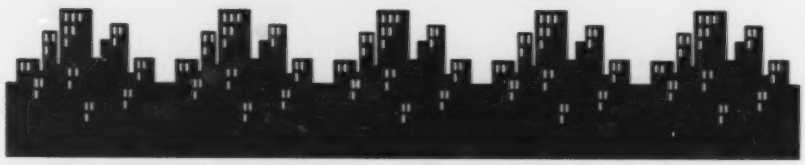
# KNOWLEDGE WORK

## THE RISE OF THE *OFFICE ECONOMY*



# FULL REPORT

***AUSTRALIAN NATIONAL TRAINING AUTHORITY***

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# The new office economy

It was only a few hundred years ago that human endeavour focussed on the land as a source of food and work. By the eighteenth century, mechanical, electrical and scientific developments enabled production-based industries to emerge. Now, it seems that new communications and information technologies have shifted the emphasis from what we can *produce* to what we *know*, and what we can *share*.

In what is but a flicker of time in the history of the universe, its human inhabitants have moved from the agricultural age, through the industrial age and into the information age. The moon landing in 1969 was achieved using less computing power than sits on the average desktop today. It is estimated that by 2019 (only 50 years after the trip to the moon) a $US 1000 computer will have computational power equal to the human brain. And 10 years after that, an average PC could be the equivalent of 1000 human brains[2].

The Australian economy has also diversified, from a focus on the land and what could be grown from it or dug out of it, to the growth of secondary industries in manufacturing and processing, to a thriving tertiary sector. Tertiary industries (finance, business services, information technology, media, entertainment, education, tourism, arts, health and community services) are growing in Australia and around the world.[3]

Compared with many countries, Australia has a stable political environment, low inflation and strong economic growth, an educated and healthy population, cultural diversity, a clean environment, rich natural resources, a high standard of living and loads of space.

The changes in the Australian economy and labour force over the last quarter of a century have been significant - this has been a time of:

- persisting unemployment and long-term unemployment
- an increasingly part-time, contract and casual workforce
- a labour market in which education is becoming more of a pre-requisite
- the growth of the global information economy
- privatisation, deregulation and downsizing of public services
- more and more pressure on businesses to increase productivity

In this environment, everybody wants to know: "*Where are the jobs going to be?*" and more importantly, "*Where are the **good jobs** going to be?*"

Nobody knows with any certainty. Many high profile jobs today were not imagined 50 years ago - technology-based jobs like 'webmaster' and 'software engineer'. Other jobs have moved from the unusual to the commonplace because of consumer demand for personal services - jobs like fast food salespersons, car wash attendants, and childcare workers.

Career choices have less certainty and a shorter life span than ever before. Nowadays, career paths have to be carefully planned and worked at. Years of education and/or employment experience enable the collection of a portfolio of skills and knowledge that will probably need to fit a succession of jobs rather than just one.

As the twentieth century draws to a close, more and more jobs are in the services sector than ever before. Within the past 25 years there has been a rise in the 'office economy' sector, jobs whose outputs are not physical products or services. These office economy jobs trade information, money, advice and resources, more often than physical skills and labour.

Office economy people work in finance, administration, supervision, law, advertising, sales management, marketing and business services. They are not employed in goods production or over-the-counter retail or hospitality. Their mission is to trade knowledge - they are *knowledge workers.*

One thing is true. These days, people are more likely to be working in an office economy role than ever before. This is the growth sector in all businesses and industries. This is the rise of *the Office.*

## Carnevale and Rose

This report is based on an American study titled *Education for What? The New Office Economy*. This study was prepared by Anthony P. Carnevale and Stephen J. Rose of Educational Testing Service Public Leadership, a leading educational research organisation based in the United States.

Essentially, the US project used population survey data (from 1959 to 1995) to reclassify workers according to a combined occupation and function approach. The approach yielded valuable insights into the changes in the US labour force and economy over the years, providing evidence of the growth of the office economy.

The functional approach taken by Carnevale and Rose resulted in the following **function groups**, using a work site *key* to make the categories more readily understood:

**The Farm: represents goods-producing extractive industries**
**The Factory: represents goods-producing industrial production**
**The Counter: represents low-skilled services**
**The Hospital/Classroom: represents high-skilled services**
**The Office: represents administration and co-ordination**

*The work site terminology is only intended to be representative of the function groups, which cover a whole range of industries and jobs. For example, 'Farm' includes not just agricultural but also mining functions and 'Counter' includes not just retail services but also personal services.*

The first two functions are goods-producing functions, whilst the third and fourth are consumer service functions. These include only the direct labour necessary to perform the task.

The final category, defined by Carnevale and Rose as the Office, includes all activities involved in managing public and private affairs – including employment in front offices, finance, insurance and real estate, companies providing services to other companies, public administration, and non-profit membership organisations.

In addition to the function groups, Carnevale and Rose divided jobs into three **job types - 'Elite jobs'**, **'Good jobs'** and **'Less-skilled jobs'**, based on the 21 broad occupation groups.

*For ease of comparison and to adhere to the Carnevale and Rose methodology, this report has adopted the same function group and job type terminology as defined by the US study.*

## The structure of this report

This report will provide an overview of the entire Australian workforce based upon the Carnevale and Rose methodology. The workforce is therefore viewed as the jobs that people actually do.

**Section I** of this report details the rationale behind the functional approach (Office, Hospital/Classroom, Factory, Farm, Counter) taken to analyse economic activities and the workforce, and outlines the methodology for the project. This section provides an overview of the trends in the total workforce for the 20 years since 1976. It presents findings on employment share, and the education and earnings of workers in the various function groups.

This section also includes a focus on **workers in the middle of their career** and provides a more detailed look at the changes occurring with respect to workers who are most representative - the prime age workers.

**Section II** of this report explains the job level analysis (Elite, Good and Less-skilled) in greater detail and presents findings on employment share, education and earnings in terms of these categories.

## Rationale

As this study is a replication of the American Carnevale and Rose study, the results have been displayed in a similar format to aid comparability.

Carnevale and Rose mention several ways to examine the economic impact of a functional group. They state that the simplest method of analysis would be to simply count the number of people in each function group. Unfortunately, this methodology can provide misleading results by overemphasising the growth in highly casualised industries and equating a full-time worker with a part-time worker. Therefore, Carnevale and Rose reported on the relative share of the function groups, and this approach has also been adopted in this report. Similarly, the amount of pay received by workers has also been studied. Income is analysed as the share of total earnings and is influenced by total employment and total pay.

The data are based on the count of persons in each category. Factors such as geographical location, or non-traditional working arrangements have not been taken into account. However, data are also displayed by gender since the male/female split in terms of earnings and workplace location are still very different.

This report largely focuses on the 'prime age' population as opposed to the entire population. Carnevale and Rose suggest that the prime age workforce provides a more representative picture of the "worker". That is, it eliminates variance caused by persons in transitory stages of their life - either from education to work or work to retirement. This is described in more detail later on.

# Key messages

## The key messages from the United States

The American study is part of a larger research agenda to analyse America's skill requirements in a changing economy. The approach grew out of recognition that changes in technology, communication, transportation, consumer demand and the labour market are restructuring the workforce. The United States' economy has undergone many of the changes observed in Australia, but with a 'lead time'.

*Education for What? The New Office Economy* challenges the notion that the loss of jobs in traditional areas spells bad news for workers and for the economy as a whole. The report argues that the threat of America becoming a nation of low skilled, low paid workers (the 'hamburger flippers') is a myth.

In the United States, the share of low wage service jobs has fallen, and it is the Elite jobs (managers and professionals with qualifications and on good pay) that are taking off. In the meantime, Good jobs have held a steady share.

Carnevale and Rose present a strong case for the growth of the Office, arguing that it has long been with us and that it now dominates the US economy in both employment share and earnings share. In the United States, Office workers make up 41 per cent of the workforce, but account for half of all earnings, and 65 per cent of managerial and professional jobs.

## The key messages for Australia

The Australian project findings are mostly similar in terms of the functional area changes but dissimilar with regards to the job level changes.

**The Office is the largest sector**

1. **Office work dominates the Australian economy**
   This sector has become the dominant feature of our economy, employing 43 per cent of all workers, paying some of the highest salaries, employing more educated workers, showing substantial growth and capturing almost 50 per cent of all earnings.

2. **Office professionals outnumber clerical workers**
   The traditional view of an office is a workplace dominated by secretaries and other support personnel. But in today's Office economy, managers and professionals - finance and insurance managers, real estate agents and brokers, and business professionals - account for 56 per cent of Office jobs.

3. **As Office work has grown, industrial work has decreased**
   In 1976, 27 per cent of workers were employed in industrial production, and they accounted for 26 per cent of all earnings. By 1996, both of these ratios had fallen to 16 per cent. This means that the Factory trails the Office by 27 percentage points in terms of employment and by 33 percentage points in terms of total earnings.

4. **It is a long time since Australia was just a raw-material-producing country**
   Only 6 per cent of the workforce were on the Farm (agriculture, forestry, fishing and mining) in 1976, with this figure dropping to 4 per cent by 1996.

## The Counter leads on growth rates

5. **For Counter workers, there are more jobs but low earnings growth**
   Counter workers provide relatively low-skilled consumer services functions. Their earnings have barely increased (in constant dollars) for 20 years due to the fact that most are working part-time. The share of lower skilled service jobs in the economy has increased from 12 per cent to 19 per cent over the same time. In fact, the number of Counter workers has grown by 111 per cent from 1976 to 1996.

## The Australian workforce is polarising

6. **The educational profile of the workforce has increased over time**
   In 1976, 42 per cent of Australian workers had a post-school qualification. By 1996 this had risen to 53 per cent, reflecting the increase in workers with vocational education and training (VET) qualifications (up from 22 per cent to 26 per cent) and higher education qualifications (up from 8 per cent to 20 per cent - a 170 per cent increase in number).

7. **As the education of the workforce has risen, 'Good jobs' have been replaced by 'Elite jobs'**
   In 1976, 48 per cent of workers were in 'Good jobs', falling to 39 per cent in 1996. This loss was offset by a gain in 'Elite jobs' from 16 to 28 per cent. The share of Less-skilled jobs has remained between 29 and 31 per cent for the past 20 years. So in Australia, 'Good jobs' are being replaced by 'Elite jobs' but 'Less-skilled' jobs are holding their ground.

8. **Earnings for 'Elite' and 'Good jobs' are moving further away from earnings for 'Less-skilled jobs'**
   In 1976, 'Elite jobs' earned on average $12,400 more per annum than 'Good jobs' and 'Good jobs' earned $3,900 more per annum than 'Less-skilled' jobs (in 1996-97 dollars). By 1996, 'Elite jobs' earned on average $13,800 more per annum than 'Good jobs' and 'Good jobs' earned $7,700 more per annum than 'Less-skilled jobs'.

9. **The gender earnings gap is still large, but is narrowing**
In 1976, males earned on average 68 per cent more than females. By 1996 this had dropped to 55 per cent.

## The Office is not just for those with university qualifications

10. **University graduates are heading for the Office**
As might be expected, people with university level qualifications tend to work in the Office. (In 1976, 35 per cent of males and 8 per cent of females with higher education qualifications were employed in the Office sector, but by 1996, this had risen to 54 per cent and 28 per cent respectively.

11. **Graduates with vocational education and training qualifications are also heading for the Office**
The notion that vocational education and training (VET) students are destined predominantly for industrial, manual or frontline services jobs no longer applies. In fact, the Office is the common destination for VET graduates. In 1976, 38 per cent of males with VET qualifications were employed in the Office, and by 1996, this had risen to 41 per cent. For females with VET qualifications, the Office has *always* been the most likely work destination, and this pattern is showing no signs of change. For women with VET qualifications, Office employment increased from 47 per cent to 57 per cent over the 20 years to 1996.

## The Office and the Hospital/Classroom represent the Good jobs in terms of higher average earnings and qualifications

12. **Most Office jobs fall into the 'Elite' and 'Good' categories**
The majority (61 per cent) of 'Elite jobs' are based in the Office. The Office is also the location of many 'Good jobs' (57 per cent of all workers). Moreover, 90 per cent of all Office work is in 'Elite' and 'Good jobs'.

13. **High-skilled services (eg. education, health care, police and firefighters) have become a more important component of our economy**
From 1976 to 1986, the employment share of Hospital/Classroom jobs rose from 12 to 14 per cent and then stabilised. Their pay, however, has continued to increase, remaining above the surge of the Office. Total earnings in these activities now surpass those of the entire industrial (Factory) sector. Females with university education are still most likely to work in Hospital/Classroom jobs, as do many with VET qualifications.

# Section I: A functional approach to economic activities

## Defining functional categories

In Australia, we commonly organise economic data using industry, occupation or commodity classifications (see Table 1). Each of these classifications focuses on a different aspect of business and therefore each classification provide a unique perspective on our ever-changing world.

For example, an industry-based classification (such as the Australian and New Zealand Standard Industry Classification - ANZSIC)[1] focuses on the main income earning activity of the business, whether it is from Agriculture, forestry and fishing, Manufacturing, Finance and insurance or Retail trade, etc.

**Table 1. Industry, Occupations & Commodity Classifications Major Divisions**

| Industry | Commodity | Occupation |
|---|---|---|
| Agriculture, Forestry & Fishing | Agriculture, Forestry & Fishing Products | Managers & Administrators |
| Mining | Ores & Minerals | Professionals |
| Manufacturing | Electricity, Gas & Water | Associate Professionals |
| Electricity, Gas & Water Supply | Food Products, Beverages & Tobacco | Tradespersons & Related |
| Construction | Textiles, Apparel & Leather Products | Advanced Clerical & Service |
| Wholesale Trade | Other Transportable goods | Intermediate Clerical & Services |
| Retail Trade | Metal Products, Machinery & Equipment | Intermediate Production & Transport |
| Accommodation, Cafes & Restaurants | Construction Work and Constructions | Elementary Clerical, Sales & Service |
| Transport & Storage | Trade Services; Hotel & Restaurant | Labourers & Related |
| Communication Services | Transport, Storage & Communication Services | |
| Finance & Insurance | Business Services | |
| Property & Business Services | Agriculture, Mining & Manufacturing Services | |
| Government; Administration & Defense | Community, Social & Personal Services | |
| Education | | |
| Health & Community Services | | |
| Cultural & Recreational Services | | |
| Personal & Other Services | | |

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An occupation-based classification (such as the Australian Standard Classification of Occupations - ASCO)[5] focuses on the tasks performed by the individual. Is the individual employed as a manager and administrator, tradesperson, or elementary clerical worker, etc.?

From the two examples above it becomes clear that these classifications provide a very different measure of activity within the economy. A cashier employed by a retail chain would be coded to a different industry than a cashier employed by a museum. However, the two cashiers would receive the same occupation code.

A third classification used to measure economic output is a commodity-based classification (such as the Australian and New Zealand Standard Commodity Classification - ANZSCC)[6]. A commodity classification focuses on the final product. Is the final product a transportable good, a trade service, or a community, social or personal service, etc?

All of these existing classifications achieve their intended goal. That is, the industry classification provides data on industry employment and expenditure. The occupation classification provides data on occupational trends and the changing demands of employment, and the commodity classification provides data on how many units business produces.

However, it appears that these classifications are limited in their ability to capture the changing trends in the "new-world" economy. The world is changing dramatically - words such as "knowledge-based economy" and "intellectual capital" have become permanent members of our vocabulary, and the industrial labour model becomes a distant part of our past.

## Problems with using an industry approach to study today's economy

If we look at data purely on an industry basis, we miss out on understanding the growing segment of the population working in the industry whose job is not directly related to the purpose of that industry.

This occurs because of industry coding rules that have the effect of allocating administration workers to the industry they serve. So an accountant working for Mount Isa Mines is coded to being employed in the *Mining* industry and not *Finance & Insurance.*

In fact, there is a whole range of occupations that could be reclassified from the *functional* point of view (what people actually *do*), rather than the industry they work in. Other examples of these would include:

- an in-house lawyer for Westpac Banking Corporation
- a sales representative for Glaxo Wellcome Pharmaceuticals
- a teacher who serves in the Royal Australian Air Force (RAAF)
- a supervisor of operatives in a BHP steel mill

These people are attached to particular industries, but they are *first and foremost lawyers, sales representatives, teachers* and *supervisors*, and their educational qualifications, work patterns and earning patterns echo people in the same occupation, irrespective of the industry they are employed in.

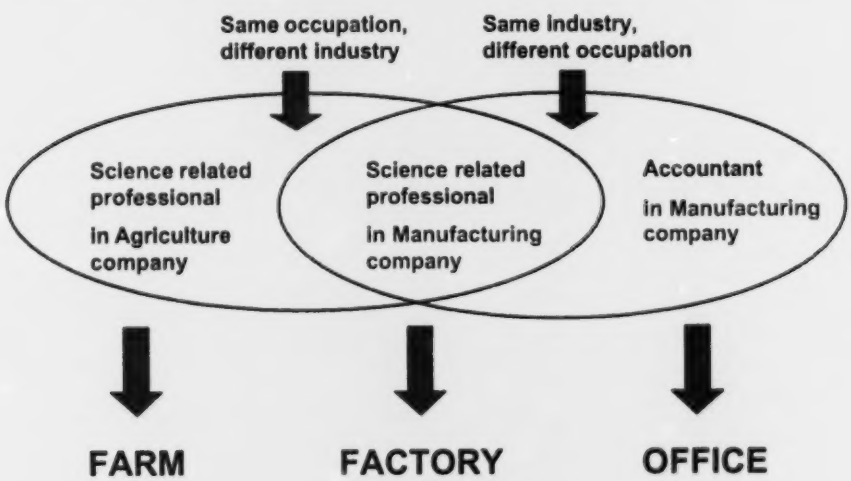
## Problems with using an occupation approach to study today's economy

The limitations of ASCO lie in the fact that an occupation can belong to only one category - but the same occupation can exist in many industries. An occupational classification groups all tradespersons (for example hairdressers and plumbers) together irrespective of the very different industries in which these workers can be found.

Carnevale and Rose argue that the limitation of both traditional approaches is that services need to be defined narrowly and should not include all white-collar workers (as is commonly done in occupation classifications) and should not include office administrators and executives (as is commonly done in industry classifications). Carnevale and Rose believe that services need only to include the "direct labour needed to perform the task" and recommended that a functional classification is required to resolve the contradictory reporting on the service industry.

Therefore to get a clear picture of the work people do Carnevale and Rose developed a methodology to combine industry data with occupation data (this overcomes the limitations of both classifications described above) - and this is what the Australian National Training Authority have repeated for Australia.

Consider the following example:



In the example above, consider three people: a science related professional in an agriculture company, a science related professional in a manufacturing company, and an accountant in a manufacturing company. The first two have the same occupation. Classified by occupation, they would be grouped together as a science related professional. But they work in different industries; classified by industry, they would be separated into the *Agriculture, Forestry and Fishing* industry and the *Manufacturing* industry respectively. The accountant has a different occupation to both of them. However, if classified by industry, data relating to the science related professional and the accountant would be treated together under the manufacturing industry.

## Functional groups - the Carnevale and Rose approach

The Carnevale and Rose methodology leaves us with a third possibility, in which all three persons would be allocated to different categories. Carnevale and Rose classified workers firstly according to their occupational group, this would split the three people in the same way as the occupational grouping currently used by Australian Bureau of Statistics. The second stage classifies occupations according to the industry in which they work, differentiated between the direct and indirect contributions made, with the result that all three people are allocated to different *functional groups*:

- A science related professional (occupation) working in the agriculture industry (industry) provides a direct contribution and so is classified as '**Farm**'.
- A science related professional (occupation) working in the manufacturing industry (industry) also provides a direct contribution and so is classified as '**Factory**'.
- An accountant (occupation) working in the manufacturing industry (industry) does not contribute directly to manufacturers and so is classified as '**Office**'.

## Defining Carnevale and Rose categories

In studying the workforce and economy of the United States, Carnevale and Rose recognised that it was time to take a new look at labour force, education and earnings data. Essentially, the project involved taking US population survey data (from 1959 to 1995) and reclassifying workers and their associated characteristics (earnings, education, job levels) according to the combined occupation and industry function approach. The approach yielded valuable insights into the changes in the US labour force and economy, which provide evidence of the growth of the Office economy.

Carnevale and Rose applied the methodology of combining occupation and industry data to create 21 occupational categories (see Appendix A). These 21 occupational categories were again aligned with the industry data to create 15 functional groupings. Appendix A contains a complete list of the broader categories developed under this methodology.

The functional approach taken by Carnevale and Rose resulted in the development of the five broad functional classifications: the Farm, the Factory, the Counter, the Hospital/Classroom, and the Office.

With any classification there are limitations. With respect to the functional classification, certain groupings (e.g., the Office groups executives with secretaries) are less than desirable.

However, the five category approach does provide very useful information, and for ease of communication, the five-category approach has been adopted in the bulk of the Australian report. The decision rules for creating the five functional groups are taken from the Carnevale and Rose (1998, p.7) study and are described in Appendix B.

### The Australian project

Research at ANTA has replicated the Carnevale and Rose study using Australian survey data from the last five Censuses (1976, 1981, 1986, 1991 and 1996), collated and concorded by the Australian Bureau of Statistics, Brisbane office. For ease of comparison, this report adopts the concordances and the terminology (including the function group names and the job level names) of the original paper by Carnevale and Rose.

The relationship between industry and occupations in the five Carnevale and Rose functions for Australia is shown in Appendix C.

The result is a time series profile of the Australian workforce that we have never seen before, focusing on the nature of people's work instead of just the industry where they work or what occupation they have.

## A functional approach: the findings

The findings for the Australian workforce are covered in two sections: the overall results for Australia and more detailed analyses of workers in the middle of their career - the prime age workers.

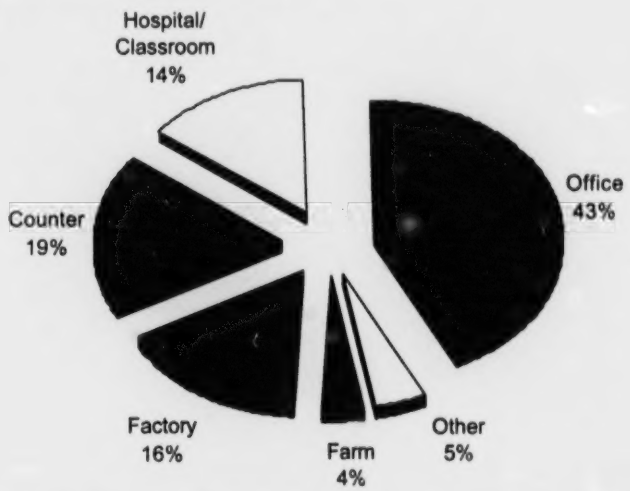
When the data of the Carnevale and Rose methodology is applied to the total Australian workforce, this is what we found:

In Figure 1 below, it is possible to see how the Office functional group accounts for a very significant slice of the workforce; in Australia, about 43 per cent. It is the single largest group of workers, accounting for about 3.3 million workers.

The next largest group is the Counter, with 19 per cent of workers, followed by the Factory, with 16 per cent of workers. The Hospital/Classroom comes next with 14 per cent, with the Farm employing the smallest percentage of workers (4 per cent).

**Figure 1: The Office takes over - where people worked in 1996**

Share of workforce in 1996 - by functional group




"Other" workers are those who were unable to be classified into a function group due to insufficient information about their occupation and/or industry. A small "other" cohort is a feature of most of the data in this report. For more information on the Other category see Appendix D.

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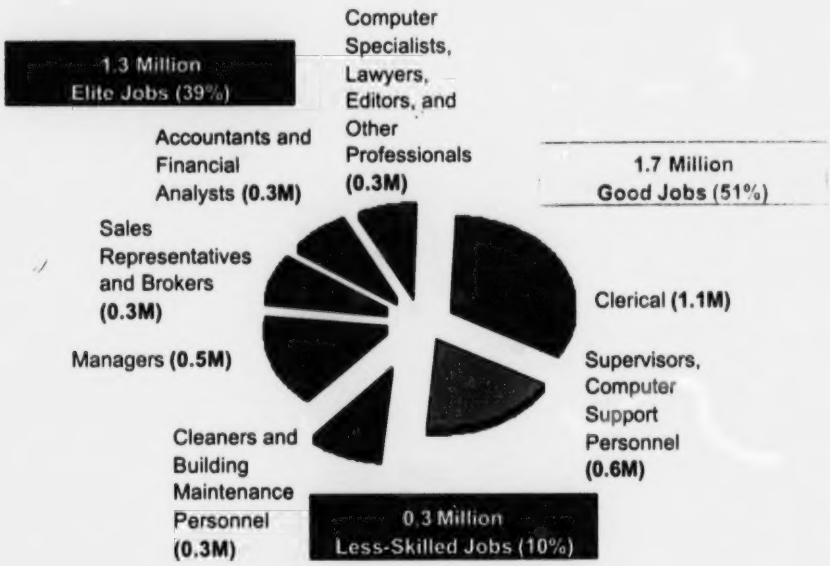
The Australian project reveals relationships between what people do, how much they earn and their level of education. People who work in similar jobs tend to have similarities in terms of other things, including earnings and level of education. For example, of the 3.3 million Office jobs, over a third of them (39 per cent) are 'Elite jobs'. Half of them (51 per cent) are considered 'Good jobs' and about 10 per cent are 'Less-skilled jobs'. These three 'job types' are looked at in more detail in the second section of this report.

The following figure shows the breakdown of jobs in the Office.

**Figure 2: Australia's 3.3 million Office workers in 1996**

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## Changes over time

In Australia, over the period 1976 to 1996, the Office has grown from 37 per cent of jobs to 43 per cent of jobs. The Australian post-war engine room of manufacturing, construction, mining and agriculture seems to have given way to the new Office. Occupations such as managers, bankers, insurance agents, lawyers, accountants, government workers, writers, economists and sales representatives now have the lion's share.

Figure 3 shows the change in employment share for each of the five functional groups over the last 20 years.

**Figure 3: The Office sector leads the way**

Share of workforce over time - by functional group

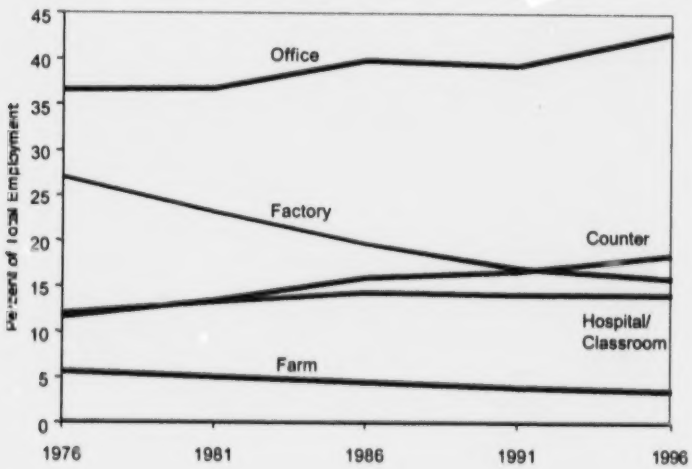


Figure 3 shows the *relative shares* of employment held by the function groups. So it would be possible for all groups to have grown, and yet some to show a decrease in *share*, relative to the other (faster growing) groups. In terms of the percentage change within each function over the last 20 years (as opposed to the *relative* change):

- Office has grown by 55 per cent (to 3.3 million jobs)
- Hospital/Classroom has grown 55 per cent (to 1.1 million jobs)
- Factory has decreased by 21 per cent (to 1.2 million jobs)
- Farm has decreased by 14 per cent (to 280,000 jobs)
- The Counter has increased by 111 per cent to 1.4 million jobs (this equates to over 750, 000 new jobs in 20 years)

Both of the goods-producing functions, the Factory and the Farm, have experienced a decline in total employment over the last 20 years. The Factory has decreased by 21 per cent and its employment share has dropped from 27 per cent in 1976 to 16 per cent in 1996.

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Employment on the Farm has decreased to a lesser extent (14 per cent) than the Factory (21 per cent), and has shown an employment share drop from 6 per cent in 1976 to 4 per cent in 1996.

This significant decrease in employment share for the goods-producing groups may not only reflect a down turn in employment within this sector, but may indicate a rapid growth in other sectors*. For example, it was reported in 1998 that a possible reason for the observed decline of employment share in the manufacturing industry could be due to a faster rate of growth in the services industries.[7] This assertion is supported by the increase in employment in the consumer service functions of the Hospital/Classroom and the Counter.

The Hospital/Classroom has grown by 55 per cent over the last 20 years and in 1996 accounted for 14 per cent of employed persons (this has increased from 12 per cent in 1976), but its growth appears to have halted there for the past ten years or so.

The Counter has shown a massive increase of 111 per cent over the last 20 years. This equates to over 750,000 extra jobs. The employment share of the Counter has grown from 12 per cent in 1976 to 19 per cent in 1996. This has resulted in the Counter now being second only to the Office in employment share.

The above finding has important implications for education and training. For example, key questions it raises are what are the specific and generic skills required to succeed in the Office and the Counter and can these skills be enhanced by training providers? If so, is Australia currently doing enough to ensure that our Counter and Office workers are equipped to succeed in their respective professions?

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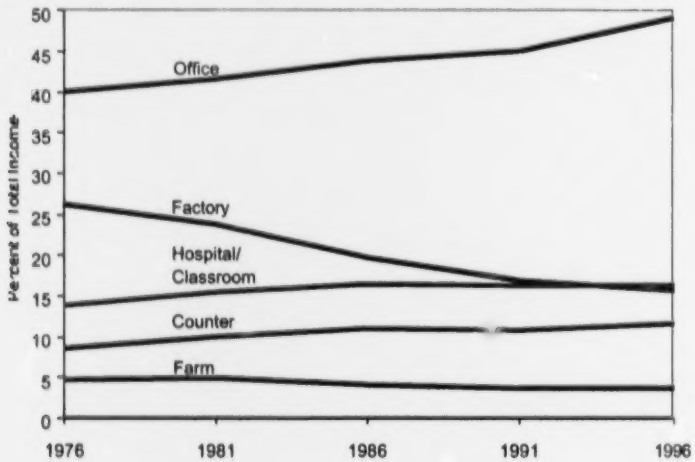
* Employment share is a "relative" measure.

## The earnings pool

When we look at the earnings data for different groups of workers, the picture of the Office economy becomes much more dramatic. The following figure shows the share of total earnings (in constant terms - 1996-97 prices) that go to each functional group, thereby taking into account the size of the sector as well as the earnings growth:

**Figure 4: Office workers now get almost half of all income**

Percentage of total earnings over time - by function group




*Income represents the average range, converted to 1996-97 prices. Total income reported by the Australian Bureau of Statistics in the Census is based upon usual gross weekly income. That is, the total weekly income received before tax, superannuation or other deductions are made and may include dividends, welfare payments or other benefits received.*

Between 1976 and 1996, there has been a steady growth in the share of total incomes that goes to Office workers and now almost half of all earnings go to the Office. The other four function groups have captured either a declining or flat share of total incomes. In 1996, Hospital/Classroom workers and Factory workers each receive about 16 per cent of total earnings. Although Factory workers reached this position after a steady *decline* in their share of earnings, the Hospital/Classroom workers have achieved this mark after relatively slow *growth* between 1976 and 1996.

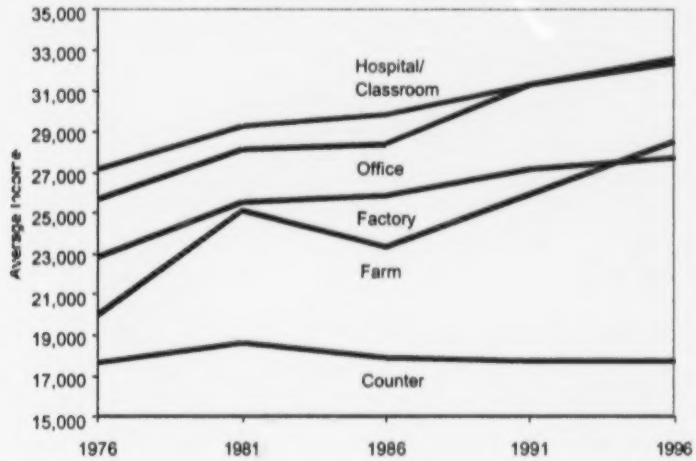
Counter workers received 12 per cent of all earnings in 1996, with Farm workers accounting for the smallest share at 4 per cent.

This data supports the picture of an Office economy in Australia. However, the Office economy may not be a new trend. Either remaining undetected or unexplored, this data now shows that the Australian Office economy has been evolving over the last 20 years.

The employment share of the function groups in Figure 3 are strongly mirrored in the share of income shown previously in Figure 4, except for the Counter. The Counter accounted for 19 per cent of total employment in 1996 - but only around 12 per cent of total income. Clearly, Counter workers' share of earnings does not match their employment share. The explanation for this is that Counter earnings have not been increasing in actual terms while the other four groups have experienced some growth in average earnings. This is shown in Figure 5:

**Figure 5: Hospital/Classroom pay narrowly tops Office pay**

Average earnings over time - by function group




In Australia the highest earnings occurred in the Hospital/Classroom, with an average income of about $32,600 (1996 rates). The highest income within the Hospital/Classroom category in 1996 was with Police and Firefighters ($39,400) and the lowest was recorded for the Education sector ($31,500).

At $32,400, the Office has nearly equaled the Hospital/Classroom for income in 1996 - with just $200 dollars separating them. The trend through the late 1980's was for Office earnings to rise sharply, eventually matching earnings by Hospital/Classroom workers. The Office has shown an overall increase of 26 per cent in earnings over the last 20 years.

One of the major concerns with the functional approach is highlighted in the average earnings. For example, the Office includes both executives and support workers – which exhibit massive differences in average wages. That is, the highest average Office wage was for business professionals ($41,100) and the lowest average Office wage was for clerical and support labour ($23,100). This is a difference of nearly $18,000.

Therefore when considering the overall figures for each of the function groups, especially the Office, care needs to be taken.

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The Farm sector shows a rather erratic pattern in earnings growth but overall recorded a 43 per cent increase over the period shown; the largest percentage increase of all the functional groups. This can be contrasted sharply with the zero growth in the Counter and increases of between 20 and 30 per cent for the remaining groups. What factors lie behind the Farm increase are uncertain. It may be that Farm earnings are simply rising from an undervalued position to a more accurate representation of the value of these jobs. Improvements in agricultural and mining technology and production, and world commodity prices corrections may also be contributing. Furthermore, the loss of jobs in this sector combined with increases in production would assist in raising per capita income.

By 1996, Factory earnings had slowed, moving below that received by Farm workers. The average income of the Farm climbed by over $5,000 between 1986 and 1996 to $28,600, overtaking Factory earnings which have stabilised at around $27,700.

The Counter has consistently recorded the lowest average incomes, which have hovered around $17,000 to $18,000 for the past 20 years. This result does not necessarily indicate that Counter workers earn less money – perhaps that many of them work fewer hours than employees in the other function groups.

For Australians, the '9 to 5' working day is disappearing. The proportion of people working between 35 and 44 hours per week has *fallen* 6 percentage points in the past decade, whilst the number of people working either longer or shorter hours has *increased*.[9] Almost 40 per cent of Counter employees work less than 24 hours per week (one in four work *less than 15 hours per week*). This reflects the trend towards casual and part-time jobs in personal and retail services.

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## A closer look at earnings

Important differences can be found at a slightly more detailed level of analysis - by the 15 functional groups rather than the broader 5 groups (see Appendix A for these groups). This level of analysis confirms that average incomes vary greatly, not only *between* the five functional groups (as we have seen) but also *within* them.

**Counter earnings** (average for whole group was $17,800 in 1996)

- Personal service jobs receive an average income of $20,000, whereas retail services jobs receive an average income of just $15,800, which is the lowest average income across all 15 groups.

**Hospital/Classroom earnings** (average for whole group was $32,600 in 1996)

- Health care jobs receive an average income of $32,400, which is only narrowly higher than education jobs at $31,400.
- Police and firefighters take away the highest annual incomes on average ($39,300), and transportation and communication for personal consumption jobs come in second place with average incomes of $34,300.

**Office earnings** (average for whole group was $32,400 in 1996)

- Business professionals receive the highest average incomes at $41,000, followed by finance, insurance and real estate jobs ($36,400) and managers (on $36,000).
- Clerical and support labour jobs in the Office sector account for the lowest average earnings at $23,000.

This difference in the Office of $18,000 between the highest earners (business professionals) and the lowest earners (clerical and support labour) is very significant. In fact, it is likely to affect the overall distribution such that many jobs in the Office will have a significantly higher income than the Hospital/Classroom and many will have significantly lower. This illustrates the importance of looking at a more detailed level of data where possible, since it is more robust on certain variables, especially income.

So, whilst high average earnings are recorded in the Hospital/Classroom and Office functional groups, it is important to remember that there are significant variations *within* these groups, particularly in relation to clerical, administrative and other support jobs.

## Workers in the middle of their career

This section looks at the findings of the ANTA study in more detail - with an added focus on education and employment, and earnings and level of education. For these analyses 'prime age' workers are the focus.

This study, like its US counterpart, has used 'prime aged' (those aged 30-59 years) males and females as the focus of the remainder of this report. This is because younger and older cohorts are less likely to be engaged in full-time employment. People under 30 are generally still acquiring their initial skills, gaining education or establishing their career 'niche'. People over 60 are more likely to be changing their work arrangements in preparation for retirement or moving to part-time work. The prime age workers can therefore be identified as "workers in the middle of their career".*

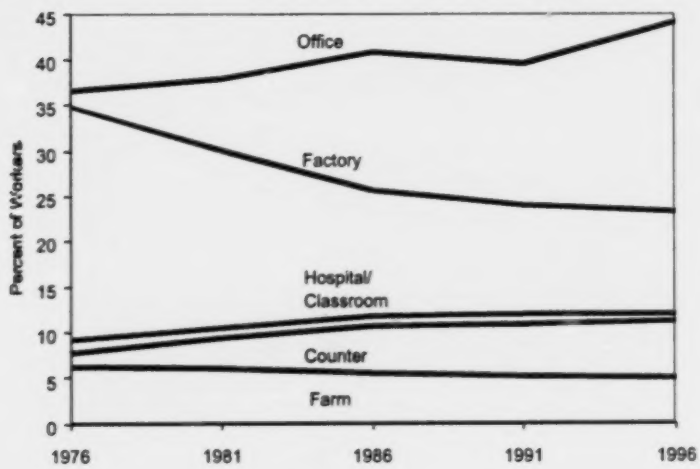
As such, data reported on these workers, especially actual numbers, will refer exclusively to the cohort of persons aged 30 to 59 years.

### Findings

In general, the pattern of employment change for males is similar to that for the total workforce (refer Figure 3), except for the lack of growth in the Counter.

**Figure 6: Males are leaving goods-production for the Office**

Share of workforce over time for prime age males - by functional group




The largest employer of males is the Office (see Figure 6), with around 44 per cent of men employed there. The employment share of males in the Office has seen an increase from 37 per cent, recorded in 1976.

* Unless otherwise stated, the report will now concentrate on the 'prime age' workforce.

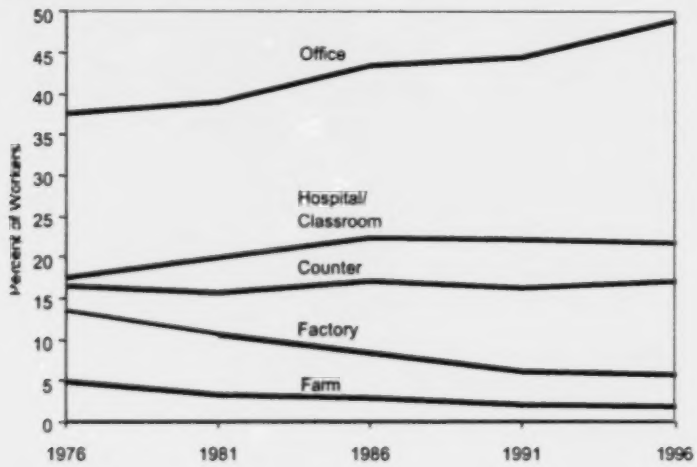
The more traditional fields for males, the Factory and the Farm, have both shown a massive decrease in employment share. For males, the Factory showed a decrease from 35 per cent in 1976 to 23 per cent by 1996. The Farm decreased from 6 per cent in 1976 to 5 per cent in 1996.

Both of the service function groups have shown a slight increase in employment share for males. The Counter increased from 8 per cent in 1976 to 11 per cent in 1996. The Hospital/Classroom grew from 9 per cent to 12 per cent over the same time.

Women were more likely to be in the Hospital/Classroom or the Counter than men were, and less likely to be in the Factory or the Farm (see Figure 7). Almost half of women, compared to 45 per cent of men, are in the Office.

**Figure 7: Women are increasingly opting for the Office**

Share of workforce over time for prime age females - by functional group




Employment in the Office for women has grown dramatically from 38 per cent in 1976 to 49 per cent in 1996.

In a similar pattern to males, there has been a notable decrease in the goods functions share of employment for women. The Factory has decreased from 14 per cent in 1976 to 6 per cent in 1996. The Farm has decreased from 5 per cent to 2 per cent over the same time.

The service functions have stabilised over the last 10 years. The Hospital/Classroom has grown from 18 per cent in 1976 to 22 per cent in 1996, while the Counter has remained stable at around 17 per cent.

## Education and employment

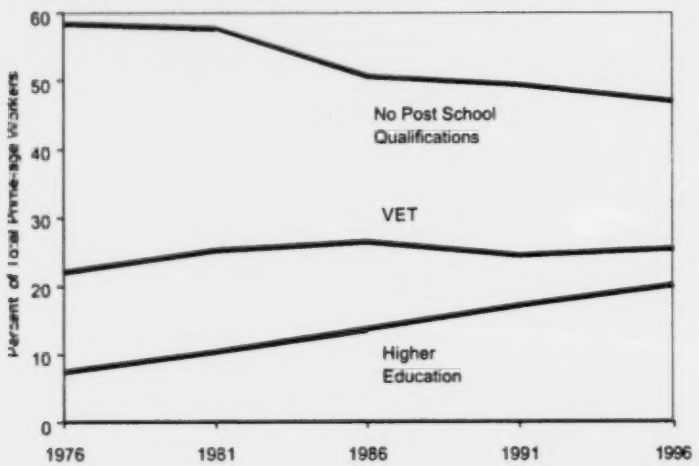
Globalisation and technological change have increased demand for workers with more education and further skills. The skills that workers possess are of major importance in this context of change. This is a time that favours more skilled and more adaptable workers.[9]

Figure 8 below shows the share of educational qualifications among the prime aged workforce. It is clear that the importance of post-school qualifications in the Australian labour market is growing. By 1996, the share of prime age workers with post-school qualifications had increased to 46 per cent, up from 30 per cent recorded in 1976.

In terms of actual numbers, the growth in workers with vocational education and training or higher education qualifications (at 135 per cent) has far exceeded the growth in workers without post-school qualifications (at 23 per cent) over the past 20 years.

**Figure 8: The growing need for post-school qualifications**

Share of educational qualifications - prime age workforce




The share of workers with higher education qualifications steadily increased from 8 per cent in 1976 to 20 per cent by 1996. Between 1976 and 1986, the share of workers with vocational education and training qualifications rose from 22 per cent to 26 per cent. After experiencing a slight fall in share to 25 per cent in 1991, the proportion of the workforce with VET qualifications increased to 26 per cent by 1996.

All the while, the share of workers without post-school qualifications has been declining. That is, the proportion of the workforce with no post-school qualifications has seen an overall decline of 11 percentage points since 1976, decreasing in share from 58 per cent in 1976 to 47 per cent by 1996.

It should be noted that educational attainment in this report refers to the *highest level* of education attained. Therefore it is possible that the vocational education and training figure is understated to the extent that some university graduates also have vocational education and training qualifications.

For example, the Department of Employment, Training and Youth Affairs' (DETYA's) *Higher Education Statistics* show that 6 per cent of commencing bachelor degree (or below) students in 1998 held an advanced diploma or diploma qualification (11 per cent held a TAFE award whilst 60 per cent had completed secondary school only) and that 7 per cent were admitted on the basis of a complete or incomplete TAFE course.

Data from the National Centre for Vocational Education Research (NCVER) suggests that in 1998, of the students who enrolled in VET with a prior qualification, one in five was a university graduate.

Post-school education and training, and especially at university level, was traditionally the province of the Hospital/Classroom group. The occupations in mind here are doctors, lecturers, university researchers, teachers and nurses. University started as the home of scholars, theorists and academics. People who were destined for business or industrial work usually went straight from school to work, learning on the job and often staying in that job for life.

Today, tertiary studies are more *vocational* in aim and coverage. There are still traditional academic courses, but there are also a wide range of job specific and practical study options available. There are probably two reasons for this. One, the competitiveness of the job market means that more and more people are seeking higher levels of education, and two, the universities and colleges themselves are competing for a share of the client market. The result is an increase in the educational profile of the workforce, and an increased likelihood of finding tertiary qualified workers in the Office sector.

This is certainly true for males, as shown in the following:

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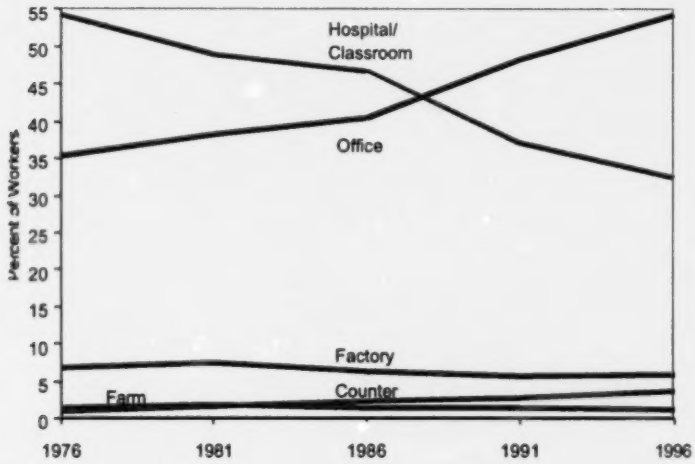
## Persons with higher education qualifications

In 1976, 35 per cent of males with higher education qualifications were employed in the Office sector, and by 1996 this had risen to 54 per cent. So over half of all university educated males are now working in the Office. The remainder work primarily in the Hospital/Classroom (33 per cent), followed by the Factory (6 per cent), the Counter (4 per cent) and finally the Farm (1 per cent).

**Figure 9: The majority of males with higher education become Office workers**

Share of prime age male workers - with higher education qualifications




So university educated males are marching into the Office sector, at the expense of the Hospital/Classroom, which attracted the same proportion of males in 1976 as the Office does now, in 1996. This has occurred despite an increase of 90,000 jobs in the Hospital/Classroom over the last 20 years. The main reason for this is the phenomenal increase in Office jobs. Eclipsing all other employment, the Office has employed a further 222,000 university educated males since 1976.

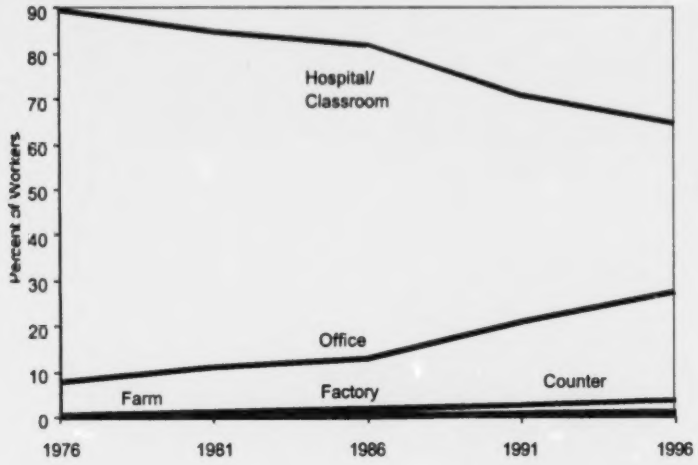
Interestingly, the share of Counter workers has more than doubled in size, increasing by 17,400 people.

This is proof that Office jobs are no longer low-skilled, administrative positions, but are more likely to demand formally trained and highly educated personnel. The question is: are the higher earnings following the educated workers, or are the educated workers chasing the higher earnings?

The picture, especially in historical terms, is very different for females:

**Figure 10: Females with higher education access Office jobs**

Share of prime age female workers - with higher education qualifications




Even as late as 1976, almost all females (90 per cent) with higher education qualifications were destined for Hospital/Classroom jobs - almost certainly as doctors, nurses or teachers. In contrast to the male figures, only 8 per cent of females with higher education qualifications found work in the Office sector.

But the outcomes for women are rapidly changing, as illustrated by the converging lines (Hospital/Classroom and Office) in Figure 10. By 1996, 65 per cent of university educated women were working in the Hospital/Classroom, with 28 per cent in the Office. A decrease in the share of higher education qualified women in Hospital/Classroom jobs has overshadowed the actual increase of 229,700 women working there over the past 20 years.

Many more males (6 per cent) than females (1 per cent) take their degrees to work in the Factory sector, while females with higher education qualifications are just as likely to find work in Counter jobs as men (at 4 per cent).

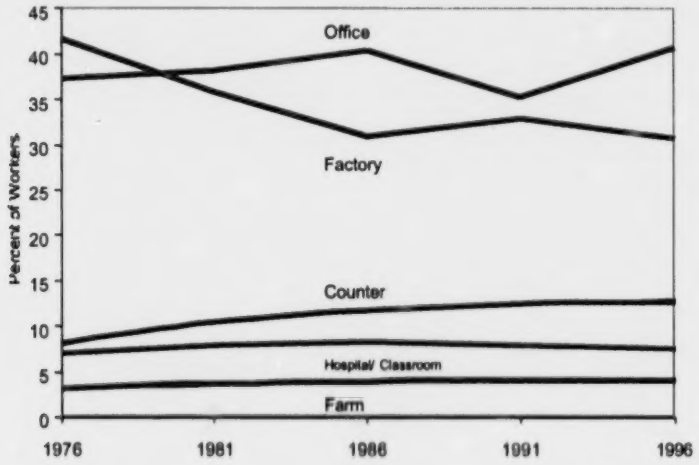
There are still significant differences between males and females in terms of employment levels, however. In 1996, amongst all workers with higher education qualifications, there were 86,900 males whose occupation was manager, and only 40,300 females. Conversely, there were 220,600 females whose occupation was teacher, and only 113,200 males.

## Persons with vocational education and training qualifications (as their highest)

Vocational education and training (VET) is vitally important to the Office sector. As well as attracting increasing numbers of workers with higher education qualifications, the Office is the most common destination of both males and females with VET qualifications.

**Figure 11: Males enter the Office with VET qualifications**

Share of prime age male workers - with vocational education and training qualifications




The figure above shows that in 1976, 37 per cent of males with VET qualifications were employed in the Office sector. By 1996, this had risen to 41 per cent, despite a drop in the late 1980's and early 1990's.

The other, more traditional destination of VET qualified males is the Factory. Over the past 20 years an additional 33,000 males with VET qualifications have joined the Factory - but in *relative* terms its employment share decreased from 42 per cent in 1976 to 31 per cent in 1996.

The low and high skilled services sectors have remained relatively stable over the past 20 years - the employment share of the Counter increased slightly from 8 per cent to 13 per cent, while the Hospital/Classroom has remained at around 7 per cent.

With nearly 20,000 VET qualified persons being added between 1976 and 1996, the share of Farm employment has increased from 3 per cent to 4 per cent.

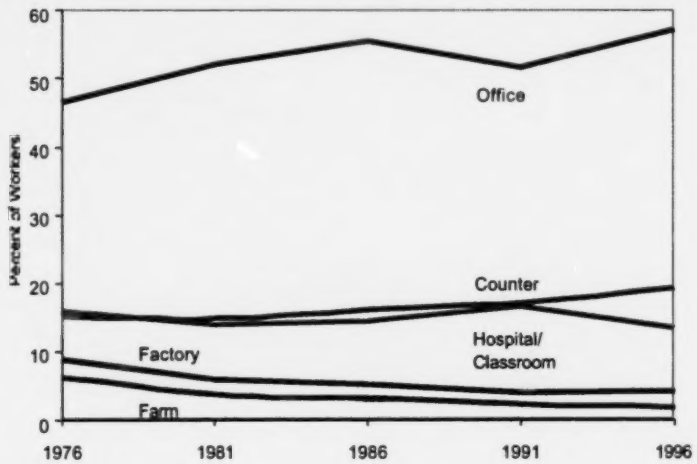
Whilst the Office is the *most common* job function for males with VET qualifications, it is the Counter that has shown the *strongest growth rate* - 138 per cent over 20 years. Rapid growth has also occurred on the Farm (91 per cent) and in the Hospital/Classroom (62 per cent).

Males with VET qualifications within function groups

- In the Counter, two thirds of male VET graduates are working in personal services, with the remaining third working in retail
- In the Hospital/Classroom, most males with VET qualifications are in transport & communication (43 per cent), with 24 per cent in health care, 17 per cent in education and 16 per cent working as firefighters and police.
- In the Office, most males with VET qualifications are managers and supervisors (43 per cent). Seventeen per cent are business professionals, 16 per cent provide clerical and support labour and 13 per cent were engaged in public administration and non-profit work. Relatively few males with VET qualifications go into finance, insurance and real estate jobs (9 per cent).

**Figure 12: Females also access Office work with their VET qualifications**

Share of prime age female workers - with vocational education and training qualifications




For females with VET qualifications, the Office has *always* been the likely work destination, and this pattern is showing no signs of change. The share of employment in the Office increased from 47 per cent to 57 per cent over the 20 years.

There is a huge difference in size between the Office and the next largest group, the Counter, where employment share has increased from 15 per cent to 19 per cent.

In fact, the Counter is the fastest growth area for this group of women, with a 324 per cent increase in employment over the past 20 years. This growth is of concern given the low earnings in this sector and the fact that Counter work generally consists of 'Less-skilled' jobs (see Table 9 in section II of this report).

However, the Office is the biggest employer in terms of actual numbers, and its growth has also been overwhelming at 306 per cent.

The other groups, Factory, Hospital/Classroom and Farm, have lost out to the Office and the Counter in relative employment share, despite moderate to strong growth in employment for VET qualified women in these areas.

For example, between 1976 and 1996, 5,000 females with VET qualifications joined the Factory, but its employment share decreased from 9 to 4 per cent. The Hospital/Classroom group grew 182 per cent, but against the tripling of jobs in the Counter and the Office, the Hospital/Classroom's *share* of female VET graduates fell slightly from 16 per cent to 14 per cent.

Females with VET qualifications within function groups

- In the Counter, 63 per cent of female VET graduates are working in personal services, with a further 37 per cent working in retail
- In the Hospital/Classroom, most females with VET qualifications are in health care (77 per cent), with 19 per cent in education
- In the Office, most females with VET qualifications are clerical and support labour (41 per cent). Twenty-six per cent are managers and supervisors, 12 per cent are business professionals, and 11 per cent occupy finance, insurance and real estate jobs. Only 10 per cent of females with VET qualifications go into public administration and non-profit jobs.

So there is a significant difference between males and females with VET qualifications in terms of the type of work each does within the Office sector, as shown in the following table based on the 'traditional' Office roles of managers and supervisors versus clerical and support labour:

**Table 2: The managerial/clerical gender pattern of the Office**

Office employment for prime age VET graduates - by gender 1996

| | Office employment for VET graduates (%) | |
|---|---|---|
| | **Males** | **Females** |
| Managers and Supervisors | 45% | 26% |
| Clerical and Support labour | 16% | 41% |

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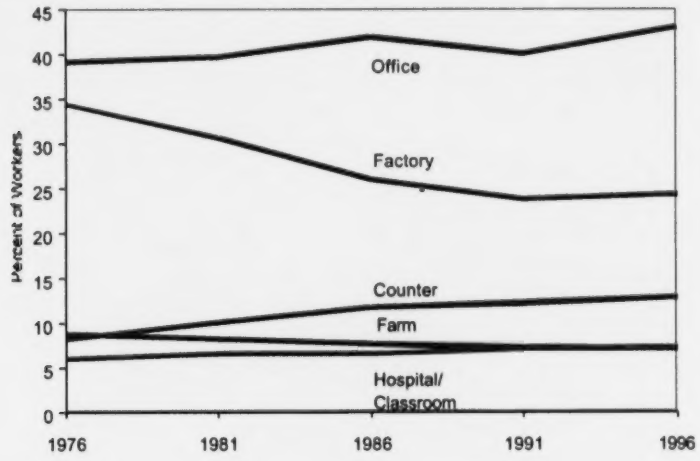
## Persons with no post-school qualifications

The previous section highlighted the increase in VET and higher education qualifications held by workers in the Office. Along with this, it might be expected that workers with no post-school qualifications would be less likely to be found in the Office. But this is not the case. In 1996, The Office held a 43 per cent share of employment for males with no post-school qualifications, up from 39 per cent in 1976. This indicates the broad growth of Office work at all qualification levels.

**Figure 13: Males still access the Office without post-school qualifications**

Share of prime age male workers - with no post-school qualifications




The largest single group of males with no post-school qualifications in the Office was employed as managers and supervisors (38 per cent).

Although this occupational level might appear to be at odds with the educational profile, it should be remembered that many people still in the workforce have reached management levels without the need for formal qualifications. It is expected that this picture will change somewhat as older workers leave the workforce and are replaced by people with higher qualification profiles.

Clerical and support workers held the second highest employment share for males with no post-school qualifications in the Office, at 24 per cent. Fourteen per cent were hired as business professionals, 13 per cent were in public administration and non-profit work and 11 per cent were in finance, insurance and real estate.

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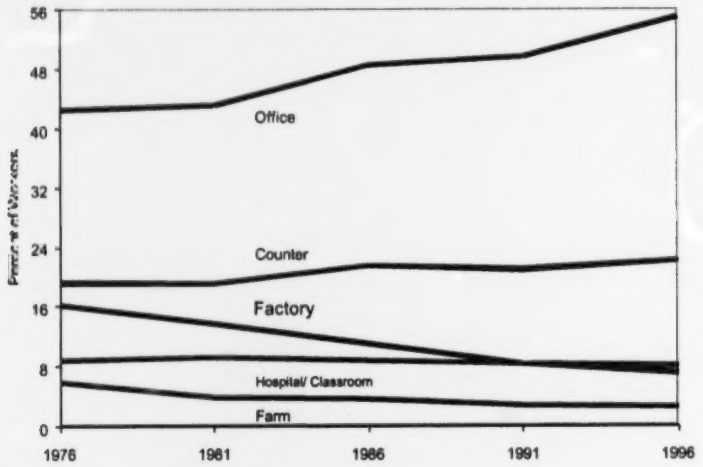
The Factory, despite its traditional low-skilled image, has seen a decrease in its share of workers with no post-school qualifications from 34 per cent in 1976 to 24 per cent in 1996. Similarly, the Farm has shown a decline in employment share from 9 per cent in 1976 to 7 per cent in 1996.

The Counter has seen an employment share increase from 8 per cent in 1976 to 13 per cent in 1996 for males with no post-school qualifications. This equates to over 57,000 new jobs. Most of this group were employed in personal services (52 per cent) with 48 per cent in retail services.

The Hospital/Classroom has shown a slight increase in employment share for males with no post-school qualifications from 6 per cent in 1976 to 7 per cent in 1996. Most of the jobs in the Hospital/Classroom for this group of workers are in transportation and communication (48 per cent), with 19 per cent in police and firefighting, and 16 per cent each in education and health care.

**Figure 14: The majority of females with no post-school qualifications are in the Office**

Share of prime age female workers - with no post-school qualifications




For females, the Office was also the biggest employer of those with no post-school qualifications in 1996. Over half (55 per cent) of all females with no post-school qualifications were employed in the Office in 1996. However, over half of these females were employed as clerical and support labour (51 per cent), and 20 per cent were managers and supervisors.

The second largest employer of females with no post-school qualifications was the Counter. The employment share in the Counter rose from 19 per cent in 1976 to 22 per cent in 1996. The majority of women in this group worked in retail (61 per cent) with a further 39 per cent working in personal services, which is almost the opposite division to that noted for males.

In 1976 the Factory accounted for 16 per cent of females with no post-school qualifications, but this decreased to 8 per cent by 1996.

The Hospital/Classroom has also shown a decline in employment share from 9 per cent in 1976 to 7 per cent in 1996. The majority (68 per cent) of females with no post-school qualifications in the Hospital/Classroom worked in health care, and a further 23 per cent worked in education. Seven per cent of women with no post-school qualifications were employed in transportation and communication and the remaining 2 per cent worked as police and fire fighters

The Farm was the smallest employer of females with no post-school qualifications. In 1976 the Farm accounted for 6 per cent of employment share, and this has decreased to 3 per cent by 1996.

Overall, that is, prime age workers with no post-school qualifications are continuing to find work in the Office and the Counter. However noticeable decreases are evident in the share of these workers employed on the Farm or in the Factory.

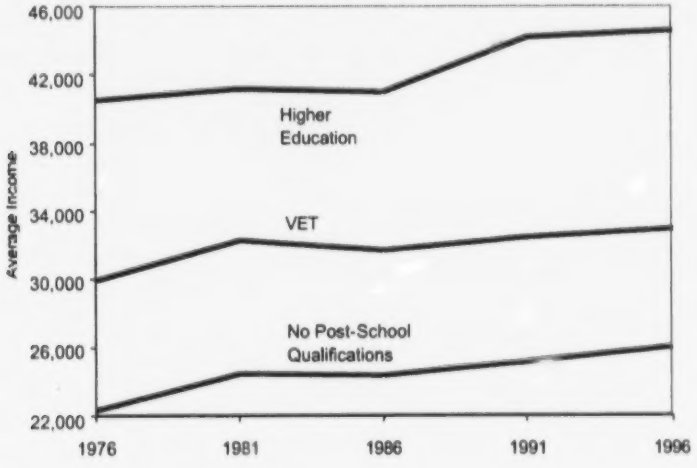
## Earnings and education levels

Higher earnings are closely linked with better education too. Figure 15 shows that, by 1996, workers with VET qualifications earned an average of $33,000, well above those with no post-school qualifications, on $26,100.

Similarly, those with higher education qualifications, earning an average of $44,700, had a significant earnings premium over those with VET qualifications.

**Figure 15: Better education leads to higher earnings**

Average earnings over time – by highest level of education attained by prime age workers




In Australia, and around the world, a pattern of increasing educational attainment is emerging, whereby the percentage of people with no post-school qualifications is decreasing, and the percentage of people with VET and/or higher education qualifications is increasing.

In 1996, earning a VET qualification contributed to a $7,000 earnings premium over workers with no post-school qualifications, a premium which will rise over the next 10 - 20 years as older workers retire.

The average income for workers without post-school qualifications is inflated by older workers who have reached earnings levels without formal qualifications. For workers *aged under 30* with no post-school qualifications, average income is just $17,700. Younger workers with VET qualifications received an average income of $25,900 while those with higher education received $31,400, proving that - for the new generation - a lack of education is becoming a real barrier to higher earnings.

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## Earnings by gender

Average earnings of males and females doing similar functions display considerable differences:

**Figure 16: Office earnings for males top the Hospital/Classroom**

Average income for prime age males - by function groups

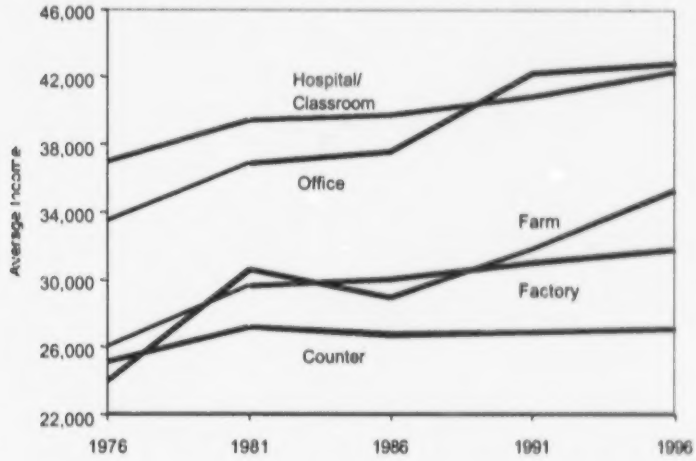


Figure 16 shows that, for males, the Office had the largest average annual income in 1996 ($42,700), earning slightly more than the Hospital/Classroom at $42,300. However, in 1976, the largest earnings were in the Hospital/Classroom, at $37,000. Hospital/Classroom earnings have been increasing, but by a lesser extent to that recorded by the Office.

In 1976, the Farm, Counter and Factory had similar income levels for males of between $24,000 and $26,000. Counter and Factory earnings each increased at different rates to 1981, but have stayed relatively stable over the last fifteen years, while the income for males on the Farm have increased to $35,300.

The largest percentage change in annual income for males was the Farm at 47 per cent, followed by the Office at 28 per cent and the Factory at 22 per cent. The number of males in the Hospital/Classroom and the Counter have grown over the last 20 years by 14 per cent and 8 per cent respectively.

The results of the earnings differences may be indicative of problems inherent in such broad analyses. Factors such as family care commitments impact on the number of hours worked, participation in secondary income activity and the career orientation of individuals - especially for women.

Since wage levels are largely determined by the hours worked, the job held and the level of responsibility associated with that job, the gender differences in earnings may, in part, reflect the influence of such factors.



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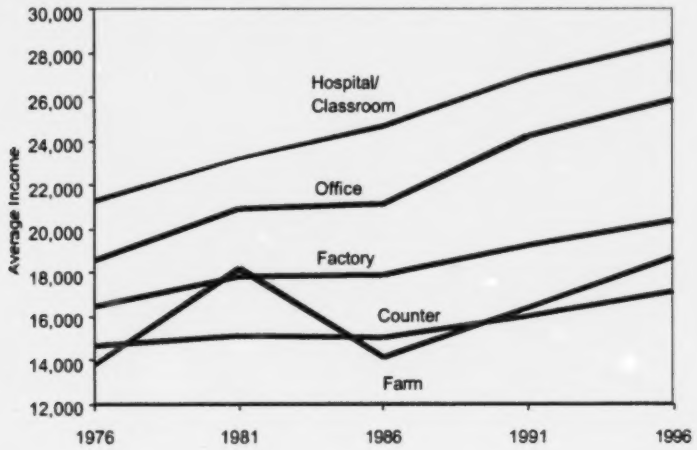
Over the 20 years to 1996, females have seen an overall increase in their earnings (see Figure 17). However, unlike males, the highest income for females was in the Hospital/Classroom at $28,500. This was a significant increase over the 1976 figure of $21,300.

**Figure 17: The biggest earnings for females are still in the Hospital/Classroom**

Average income for prime age females - by function groups




The other function groups have also experienced earnings growth. Female Office workers have recorded a strong earnings growth between 1976 and 1996 (from $18,600 to $25,900). Factory workers' earnings have increased from $16,500 to $20,400, Counter workers' earnings from $14,700 to $17, 100 and Farm earnings from $13,800 to $18,700.

The fastest earnings growth over the 20 years for women was in the Office (at 40 per cent). This was followed by the Farm (36 per cent), the Hospital/Classroom (34 per cent), the Factory (24 per cent), and the Counter (17 per cent).

Although growth in earnings has occurred for males and females in all function groups, there remain major differences in average incomes. In most cases, an inequality in the order of $10,000 in average earnings exists between males and females (see Table 3).

**Table 3: Earnings differences between males and females, 1996.**

Average income in 1996, prime age workers - by function group and gender

| Function Group | Males income | Females income |
|---|---|---|
| Office | $42,700 | $25,900 |
| Farm | $35,300 | $18,700 |
| Factory | $31,800 | $20,400 |
| Counter | $27,100 | $17,100 |
| Hospital/Classroom | $42,300 | $28,500 |

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**Table 4: Income differences for the same type of work**

Selection of the 15 function groups - income for males and females in 1996.

| Function Groups | Average annual income | |
|---|---|---|
| | Males | Females |
| Extractive Production | $35,300 | $18,700 |
| Retail services | $26,800 | $16,700 |
| Health care | $52,400 | $27,000 |
| Managers | $42,600 | $28,600 |
| Clerical and support labour | $31,100 | $21,300 |

*See Appendix F for additional data at the 15 function groups level.*

In fact (refer Table 4):

- On average, males earn more than females in every one of the 15 functional groups (see Appendix F)
- The average male income is more than 50 per cent higher than that of females in the following function groups: extractive production, industrial production, personal services, retail services, health care, finance insurance and real estate, and overall.

The gender gap has been narrowing, however, over the past 20 years. In 1976, males earned about 68 per cent more than females, or on average $29,600 versus $17,600. By 1996, the earnings premium for males had dropped to 47 per cent, in that average male income was $33,000 and average female income was $22,400. This is addressed further in section II of this report.

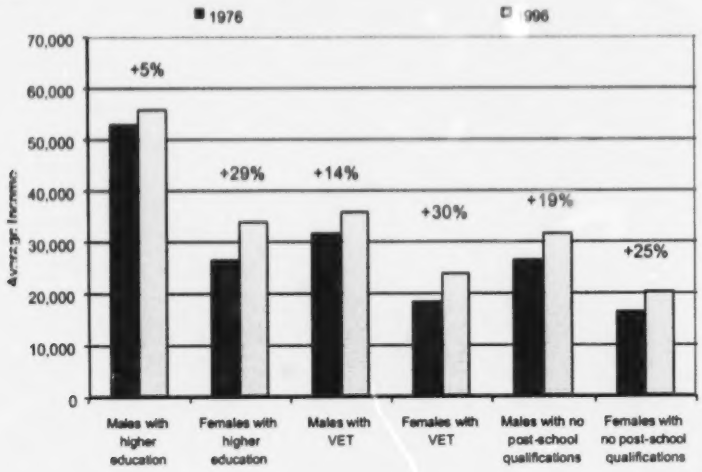
## Overall earnings growth by gender and education

Figure 18 below is worth noting. It shows that, whilst male earnings continue to outstrip female earnings, females have experienced much faster earnings growth rates. For example, males with higher education in 1996 earned an average of $55,700 versus $34,000 for females. However, over the 20 years to 1996, female earnings have grown by 29 per cent while male earnings have grown by 5 per cent. A similar situation applied for those with VET qualifications, where female earnings have grown by 30 per cent but male earnings have grown by just 14 per cent.

Despite these corrections, males with VET qualifications still earn more on average ($36,000 per annum) than females with university qualifications ($34,000 per annum), highlighting the considerable gender imbalance.

**Figure 18: Growth in earnings for males and females**

Average earnings and percentage change for prime age workers- by educational qualification and gender



# Section II: Occupational differences

## Creating a three-way job levels ladder

Traditional occupational classifications have been based upon an economy predominated by industry. With the shift to intellectual capital and a broadening knowledge base, the current conventions did not seem to offer a sufficient enough picture of the new trends that emerged from a knowledge-based economy in Australia.

As part of the development of the five function groups, eight broad occupation groups were developed based upon the approach to the work people actually do. These are detailed in Appendix A. Table 5 shows the data split for the total Australian workforce according to the US Carnevale and Rose methodology.

**Table 5: Where are the jobs?**

Job level categories of the Australian workforce 1996

| Job Type | 8 Occupation Groups | Average Income | Per cent with Post School Qualifications* |
|---|---|---|---|
| ELITE JOBS | Managers, Medical Doctors, and Lawyers | $48,400 | 62% |
| | Business Professionals | $42,500 | 61% |
| | Medical and Educational Professionals and Specialists in Arts and Letters | $32,200 | 89% |
| GOOD JOBS | Skilled Manual Workers | $30,500 | 59% |
| | Supervisors | $26,700 | 36% |
| | Clerical and Administrative Support | $24,100 | 26% |
| LESS-SKILLED JOBS | Operatives | $25,600 | 23% |
| | Salesclerks, Service Workers, and Labourers | $16,900 | 20% |
| **All workers** | | **$28,400** | **42%** |

** This category incorporates the attainment of higher education or vocational education and training (VET) as the highest qualification held.*

*It is possible that variations between earnings (for example between clerical workers and operatives) and level of education (for example between business professionals and medical and educational professionals) in the Australian data might ultimately challenge where these lines are drawn.*

The new jobs categories better reflect the change in economic theories, enabling a clearer understanding of occupations in a knowledge economy. However, these categories can be grouped even further:

**The eight-way occupation divisions can be simplified into a hierarchy of three broad 'job types' – Elite, Good, and Less-skilled Jobs, based on the 21 broad occupation groupings.**

Carnevale and Rose sorted workers into *Elite jobs*, *Good jobs* and *Less-skilled jobs*, recognising that these jobs can appear across all five functional groups. These job types are characterised by the following:

- **Elite jobs** are managers and professionals, usually with high level training and/or educational requirements for admission.

- **Good jobs** are supervisors in industrial and other areas, tradespersons, technicians, police, firefighters, clerical and administration workers. Usually these jobs require some formal training or educational qualifications.

- **Less-skilled jobs** include factory operators, sales clerks, cleaners, food service workers and farm and industrial labourers. Usually these jobs have little or no formal training or educational qualifications for admission.

The next section provides a more detailed look at the three job types.

# Job levels: the findings

Table 6 shows earnings, employment and education information for the eight occupational groups (and therefore the 3 job types) in greater detail. The table shows that Elite jobs are characterised by high levels of workers with higher education - ranging from 36 per cent of managers, medical doctors and lawyers to 83 per cent of medical and educational professionals.

**Table 6: Earnings and Employment of the New Jobs Categories**

All employed persons in 1996

| | | | | Shares of Workers (%) | | | |
|---|---|---|---|---|---|---|---|
| **Job Type** | **8 Occupation Groups** | **Share of Employment (%)** | **Average Income** | **Percent with higher education** | **Percent with VET (as highest level)** | **Percent with post-school qualifications*** | **Percent with Income of $50,000+** |
| ELITE JOBS | Managers, Medical Doctors, and Lawyers | 8% | $48,400 | 36% | 26% | 62% | 35% |
| | Business Professionals | 10% | $42,500 | 37% | 24% | 61% | 25% |
| | Medical and Educational Professionals and Specialists in Arts and Letters | 10% | $32,200 | 83% | 6% | 89% | 7% |
| GOOD JOBS | Skilled Manual Workers | 13% | $30,500 | 3% | 56% | 59% | 8% |
| | Supervisors | 11% | $26,700 | 8% | 28% | 36% | 10% |
| | Clerical and Administrative Support | 15% | $24,100 | 8% | 18% | 26% | 2% |
| LESS-SKILLED JOBS | Operatives | 9% | $25,600 | 2% | 21% | 23% | 4% |
| | Salesclerks, Service Workers, and Labourers | 22% | $16,900 | 4% | 16% | 20% | 1% |
| All Workers | | 100% | $28,400 | 18% | 24% | 42% | 9% |

** This category incorporates the attainment of higher education or vocational education and training (VET) as the highest qualification held.*

In contrast, Good jobs are characterised by a large proportion of workers with VET qualifications as their highest level. Fifty-six per cent of skilled manual workers, 28 per cent of supervisors and 18 per cent of clerical and administrative workers have VET qualifications.

The pay divide between managers/professionals and the rest of the workforce is large (at least $10,000 per annum) with 35 per cent of managers, medical doctors and lawyers and 25 per cent of business professionals earning above $50,000 yearly.

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## Distributions

Elite jobs are predominant within the total labour market. However, there are important variations depending on age, as shown in Table 7. In particular, under 21 year olds and over 65 year olds tend to be over-represented in Less-skilled and Good jobs (respectively).

This observation adds further weight to the rationale behind utilising 'prime age' workers rather than all workers for further analyses.

**Table 7: Employment share of male and female workers by age**

All employed persons in 1996

| | Shares of Workers (%) | | | |
|---|---|---|---|---|
| | Elite Jobs | Good Jobs | Less-skilled jobs | Total * |
| **All Males** | **28%** | **39%** | **30%** | **100%** |
| Males, Under 21 | 5% | 33% | 58% | 100% |
| Males, 21-29 | 21% | 42% | 35% | 100% |
| Males, Prime age (30-59) | 33% | 39% | 26% | 100% |
| Males, 60-62 | 28% | 39% | 29% | 100% |
| Males, 63-64 | 28% | 40% | 28% | 100% |
| Males, Under 21 & Over 62 | 12% | 36% | 48% | 100% |
| **All Females** | **28%** | **38%** | **32%** | **100%** |
| Females, Under 21 | 5% | 22% | 71% | 100% |
| Females, 21-29 | 28% | 38% | 32% | 100% |
| Females, Prime age (30-59) | 31% | 39% | 27% | 100% |
| Females, 60-62 | 25% | 44% | 26% | 100% |
| Females, 63-64 | 25% | 46% | 23% | 100% |
| Females, Under 21 & Over 62 | 7% | 26% | 63% | 100% |
| **All Workers** | **28%** | **39%** | **31%** | **100%** |

** The components may not add to 100 per cent due to the "other" component, see Appendix B.*

Whilst the share of Elite, Good and Less-skilled jobs is quite similar for males and females overall, important differences appear at different age groups.

The youngest workers, perhaps understandably, are most likely to be working in Less-skilled jobs (58 per cent of men under 21 and 71 per cent of women under 21). The employment share in Less-skilled jobs drops until age 64, when it rises again dramatically.

Women are more likely to end their working lives in Good jobs - around 45 per cent of women in their sixties (but only 39 per cent of men) have Good jobs. For males in their sixties, the share of employment by job level is more even, with around 28 per cent in Elite jobs, 39 per cent in Good jobs and 28 per cent in Less-skilled jobs.

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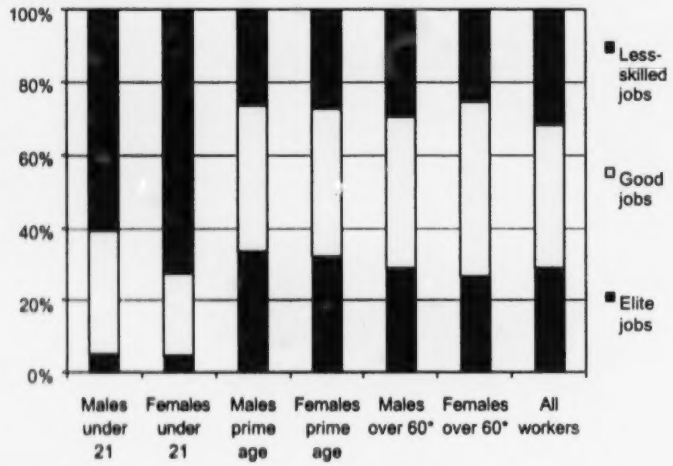
The biggest shift in job level status occurs for women during their twenties. Here, job levels shift from 5 per cent Elite and 71 per cent Less-skilled to 28 per cent Elite and 32 per cent Less-skilled in the space of a few years. This shift is much more dramatic than that which occurs for males, who appear to have a more balanced spread of Good and Less-skilled jobs at the start of their working lives.

Some of this information is represented in Figure 19.

**Figure 19: Job level mix for males and females by age**

All employed persons in 1996




** This category includes employed persons aged 60 to 64 years.*

## Access to Elite jobs by function group

The relationship between job type and the five function groups can be seen in Table 8. The majority of Elite jobs are based in the Office for males (73 per cent). For females the Hospital/Classroom (51 per cent) and Office (44 per cent) are the two main sources of Elite jobs.

* This category refers to the workforce aged 60 to 64 years.

**Table 8: The type of work in the function groups**

All prime age workers in 1996

| | Per cent of Total | | |
|---|---|---|---|
| | Elite Jobs | Good Jobs | Less-skilled jobs |
| **Males** | | | |
| Farm | 1% | 7% | 8% |
| Factory | 4% | 30% | 40% |
| Counter | 2% | 14% | 20% |
| Hospital/Classroom | 19% | 7% | 12% |
| Office | 73% | 40% | 19% |
| Total | 100% | 100% | 100% |
| **Females** | | | |
| Farm | 0% | 3% | 3% |
| Factory | 1% | 3% | 17% |
| Counter | 3% | 9% | 49% |
| Hospital/Classroom | 51% | 4% | 17% |
| Office | 44% | 80% | 13% |
| Total | 100% | 100% | 100% |
| **All prime age workers** | | | |
| Farm | 0.5% | 5% | 5% |
| Factory | 3% | 18% | 30% |
| Counter | 2% | 12% | 33% |
| Hospital/Classroom | 33% | 6% | 14% |
| Office | 61% | 57% | 16% |
| Total | 100% | 100% | 100% |

*Totals may not add to 100 per cent due to the "other" component, see Appendix B.*

Overall, the Office and the Hospital/Classroom are the major sources of Elite jobs; 94% of Elite jobs are found in the Hospital/Classroom or the Office.

Almost two thirds of Elite jobs are found in the Office, as too are 57 per cent of all Good jobs. So someone with an Elite job is most likely to be found working in the Office. But this finding does not work in reverse: 49 per cent of Office jobs are classed as Good jobs, with 42 per cent being classed as Elite (see Table 9).

**Table 9: What percentage of *Office* jobs are *Elite*?**

All prime age workers in 1996

| Function Group | Elite Jobs | Good Jobs | Less-skilled Jobs | Total |
|---|---|---|---|---|
| Farm | 4% | 57% | 39% | 100% |
| Factory | 6% | 45% | 49% | 100% |
| Counter | 5% | 33% | 61% | 100% |
| Hospital/Classroom | 65% | 13% | 22% | 100% |
| Office | 42% | 49% | 9% | 100% |
| Total | 32% | 39% | 26% | 100% |

## Education and access to Elite jobs

Table 10 shows the pivotal role education plays in today's labour market in terms of granting access to higher job types. This is particularly evident with the impact that higher education has for both men and women in terms of accessing Elite jobs. As is evident from Table 10, in 1996, 18 per cent of males and 24 per cent of females held higher educational qualifications. Of these, 81 per cent of males and 84 per cent of females have Elite jobs.

VET qualifications are more commonly attained by males (34 per cent) than females (15 per cent). The contribution of a VET qualification in accessing Good and Elite jobs is quite large. In particular, all but 18 per cent of males and 24 per cent of females with VET qualifications are working in Elite and Good jobs.

However, the majority of prime age workers do not have a post-school qualification. Forty-two per cent of males and 54 per cent of females possess no post-school qualifications, and find employment within Good and Less-skilled jobs. Very few have Elite jobs (20 per cent of males and 12 per cent of females).

**Table 10: Education distribution among the job types**

All prime age workers in 1996

| | Shares of Workers (%) | | | |
|---|---|---|---|---|
| | **Education Share** | **Elite Jobs** | **Good Jobs** | **Less-skilled Jobs** |
| **Prime age Males** | | | | |
| Higher Education | 18% | 81% | 14% | 4% |
| Vocational Education and Training (VET) | 34% | 25% | 55% | 18% |
| No Post-School Qualifications | 42% | 20% | 37% | 40% |
| Total | 100% | 33% | 39% | 26% |
| **Prime age Females** | | | | |
| Higher Education | 24% | 84% | 11% | 4% |
| Vocational Education and Training (VET) | 15% | 24% | 50% | 24% |
| No Post-School Qualifications | 54% | 12% | 48% | 37% |
| Total | 100% | 31% | 39% | 27% |
| **Shares of Job Types with Post-School Qualifications*** | | | | |
| Males | | 70% | 54% | 27% |
| Females | | 75% | 25% | 16% |

** This category incorporates the attainment of higher education or vocational education and training (VET) as the highest qualification held.*

The benefits of post-school education - the attainment of VET or higher educational qualifications - can be seen through the job share of these qualifications combined. That is, both males (70 per cent) and females (75 per cent) benefit from obtaining higher qualifications in the form of employment in Elite jobs. In particular, only 4 per cent of males and females with higher education were working in Less-skilled jobs in 1996.



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## Job level changes over time

Over the last two decades, some noticeable shifts in the labour market have taken place. Within the total workforce, a sharp increase in Elite jobs has occurred, offsetting participation in Good jobs. Amongst this change in the top tiers the Less-skilled jobs in the total workforce have remained relatively stable throughout.

It appears that younger workers are now more likely to be working within Less-skilled jobs than before (see Table 11). There has been a transition of young adults from Good jobs into low-skilled employment. All the while prime age workers have seen quite a different picture, and are now finding more employment at the Elite level than before.

**Table 11: Changes in the job share of male and female workers**

Percentage point change in the share of job types for male and female workers (1996 - 1976)

| | Change in Share of Workers (1996 - 1976) | | |
|---|---|---|---|
| | **Elite Jobs** | **Good Jobs** | **Less-skilled Jobs** |
| **All Males** | 11 | -10 | 0 |
| Males, Under 21 | 3 | -21 | 20 |
| Males, 21 - 29 | 6 | -11 | 6 |
| Males, Prime age (30-59) | 13 | -8 | -3 |
| Males, 60-62 | 13 | -5 | -8 |
| Males, 63-64 | 14 | -4 | -9 |
| Males, Under 21 & Over 62 | 6 | -16 | 12 |
| **All Females** | 14 | -9 | 1 |
| Females, Under 21 | 1 | -34 | 36 |
| Females, 21 - 29 | 7 | -12 | 9 |
| Females, Prime age (30-59) | 17 | -4 | -8 |
| Females, 60-62 | 10 | 3 | -9 |
| Females, 63-64 | 9 | 4 | -9 |
| Females, Under 21 & Over 62 | 2 | -28 | 29 |
| **All Workers** | 12 | -10 | 0 |

## The workforce

Elite jobs have been traditionally classified as an exclusive minority of white-collar workers who command a large amount of income. However, these jobs appear to be more abundant and more easily accessible by the general workforce - that is, more than one in four of Australia's total workforce are classed as having Elite jobs (see Figure 20).

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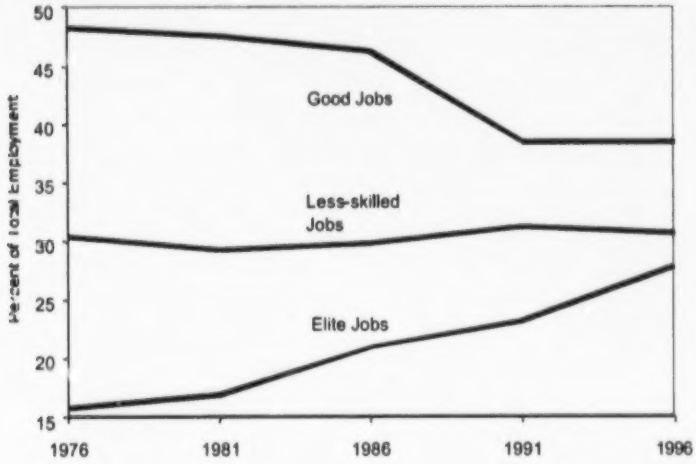
**Figure 20: Elite jobs are now more accessible than ever**

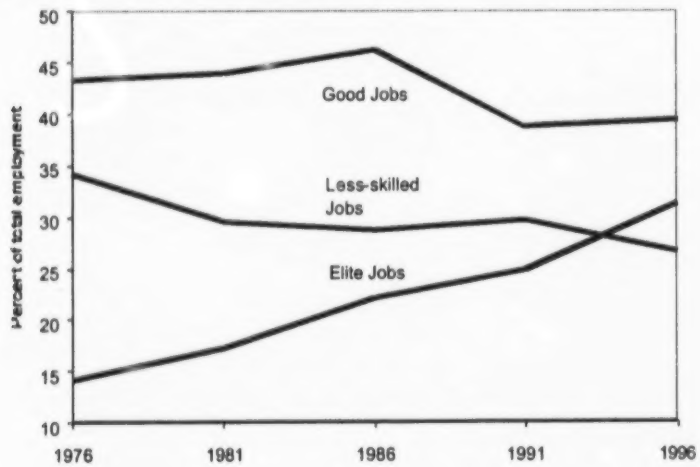
Share of the total workforce over time - by job level




Changes within the total workforce have been relatively steady. However, these trends have had a more dramatic introduction for female prime age workers (see Figure 21). A decrease of 7 percentage points in Less-skilled jobs and a slight loss in Good jobs (4 percentage points) contributed to a shift to Elite Jobs. This rise demonstrates the increased availability of Elite jobs in the workforce to the point where the share of Elite jobs had surpassed the share of Less-skilled jobs during the 5 years to 1996 for prime age females.

**Figure 21: Changes in the jobs held by females**

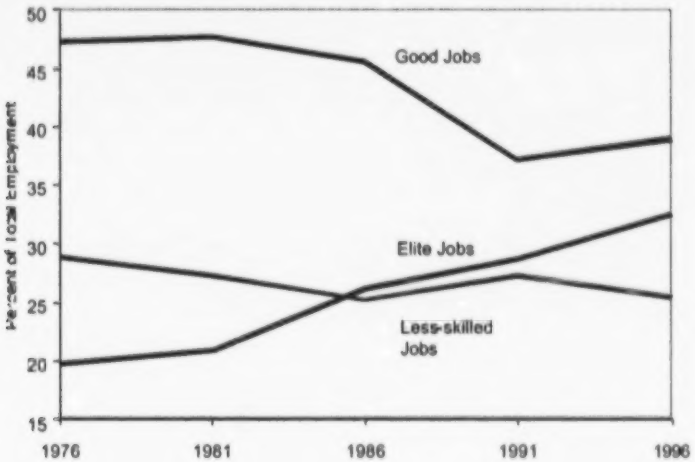
Job share in total employment for prime age females



In line with the shifts noted for females, males also saw a 'crossover' in their share of Elite and Less-skilled jobs, shown in Figure 22. For males, the share of Elite jobs rose 13 percentage points, overtaking Less-skilled jobs almost a decade previous to the shift noted for females.

**Figure 22: Changes in the jobs held by males**

Job share in total employment for prime age males




These transitions over time have seen a more equitable share of employment across the job types emerge. In 1976 the majority of workers were employed in Good jobs, followed by Less-skilled jobs. Over the ensuing 20 years, a general movement away from the lower tiers had occurred, and male workers generally began to filter into the progressively more accessible Elite arena.

Trends in the prime age labour force overall largely typify the movement towards Elite Jobs. Although in 1976 the differences between the sexes were quite dramatic, a movement towards equality in job share seems to have taken place. That is, in 1996 the share of Elite, Good, and Less-skilled jobs has become almost equivalent for prime age males and females.

## Education and the job types

Increasingly the workforce has been upgrading their level of education, resulting in a decrease in the share of workers with no post-school qualifications. Interestingly, a combination of increasing qualification profiles and competition for jobs has resulted in the share of workers with higher education shifting from Elite jobs into the lower categories for both prime age male and female workers. This is shown in Table 12.

**Table 12: Changes in the education share of males and females**

Percentage point change in the educational distribution of prime age workers (1996 - 1976)

| | Change in Share of Workers (1996 - 1976) | | | |
|---|---|---|---|---|
| | **Education Share** | **Elite Jobs** | **Good Jobs** | **Less-skilled jobs** |
| **Prime age males** | | | | |
| Higher Education | 11 | -8 | 5 | 2 |
| Vocational Education and Training (VET) | 5 | 3 | -8 | 4 |
| No Post-School Qualifications | -11 | 7 | -8 | 0 |
| Total | N/A * | 13 | -8 | -3 |
| **Prime age females** | | | | |
| Higher Education | 13 | -10 | 7 | 3 |
| Vocational Education and Training (VET) | 6 | 8 | -6 | 2 |
| No Post-School Qualifications | -15 | 8 | -2 | -4 |
| Total | N/A * | 17 | -4 | -8 |

** The total education share for each year is 100 per cent.*

There has been a large shift in the educational qualifications held by the workforce over the 20 years to 1996. In particular, the share of workers with university-level qualifications has increased by 11 percentage points for males and 13 percentage points for females over this time. Workers have also benefited from the attainment of vocational education and training qualifications, seeing an increase in share of 5 and 6 percentage points for males and females respectively.

A large decrease in the share of workers with no-post school qualifications has also occurred during this time. For males, the share of workers with no post-school qualifications decreased by 11 percentage points. This trend was even more evident for females, seeing a drop of 15 percentage points in their share of workers with no post-school qualifications.

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It is evident that the increase in share of employees with post-school education and training has seen an increase in competition for the Elite and Good jobs. This has resulted in an increase (of 3 percentage points for males and 8 percentage points for females) in the share of workers with vocational education and training qualifications in Elite jobs.

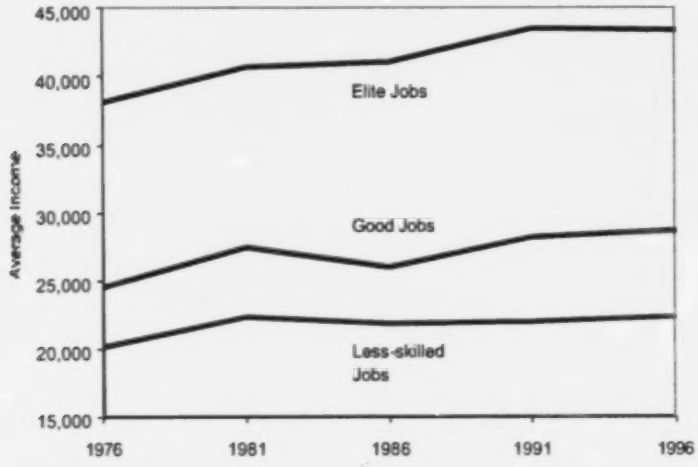
These increases have all occurred at the expense of access to Good jobs, which account for a reduced proportion of the workforce holding VET qualifications (an 8 percentage point decrease for males, and 6 percentage point decrease for females). In addition, there have been increases in the share of jobs held by VET qualified people that are classified as Less-skilled jobs.

## Earnings history

Figure 23 shows the growth in income for all prime age workers over time for the 3 job types. The average earnings for workers in Elite jobs have grown from $38,200 in 1976 to $43,400 by 1996, whilst average earnings for workers in Good jobs have grown from $24,600 to $28,700 over the same time. Finally, average earnings for all workers in Less-skilled jobs have increased from $20,200 in 1976 to $22,400 by 1996.

**Figure 23: The pay divide between job levels**

All prime age workers - average income by job type, 1976-1996




The largest earnings growth rates over the 20 year period occurred for Good jobs (17%), followed by Elite jobs (14%), then Less-skilled jobs (11%).

An analysis of the gap patterns shows that the gap between earnings of Elite and Less-skilled jobs has widened considerably, from 89 per cent more in 1976 to 98 per cent more in 1991. This gap had closed narrowly by 1996, recording a gap of 94 per cent.

The gap between Elite and Good jobs earnings has been less obvious, ranging from 55 per cent more in 1976 to 58 per cent more in 1986 and back to a 51 per cent premium by 1996.

Appendix F contains further data on the income of males and females over the period 1976 to 1996.

## Job levels and the gender earnings gap

Gender comparisons of earnings have been run to provide a more accurate picture of average earnings within occupational groups. Since males earn more than females, a study of occupation group earnings combining males and females become heavily influenced by the participation rate of females in that occupation.

Table 13 below shows that males in 1996 earned more than females at every job level, irrespective of whether they held the same educational qualifications.

**Table 13: Average Earnings differences in 1996**

All prime age workers by gender, educational attainment and job type in 1996

| | Elite Jobs | Good Jobs | Less-skilled jobs | All |
|---|---|---|---|---|
| Males. Higher Education | $58,200 | $49,100 | $28,900 | $55,700 |
| Females. Higher Education | $35,300 | $28,900 | $20,300 | $34,000 |
| **Gender Gap*** | **65%** | **70%** | **43%** | **64%** |
| Males. Vocational Education and Training (VET) | $45,900 | $33,600 | $29,800 | $36,000 |
| Females. Vocational Education and Training (VET) | $32,300 | $22,900 | $17,500 | $23,800 |
| **Gender Gap*** | **42%** | **47%** | **70%** | **51%** |
| Males. No Post-School Qualifications | $43,500 | $31,100 | $26,400 | $31,600 |
| Females. No Post-School Qualifications | $29,100 | $21,900 | $16,000 | $20,400 |
| **Gender Gap*** | **49%** | **42%** | **65%** | **54%** |
| Males. All Educational Levels | $50,700 | $33,500 | $27,300 | $37,400 |
| Females. All Educational Levels | $33,400 | $22,500 | $16,400 | $24,200 |
| **Gender Gap*** | **52%** | **48%** | **67%** | **55%** |

** The percent males earn more than females.*

To reiterate the comments from Section I: the results of the earnings differences may be indicative of problems inherent in such broad analyses. Factors such as family care commitments impact on the number of hours worked, participation in secondary income activity and the career orientation of individuals - especially for women.

Since wage levels are largely determined by the hours worked, the job held and the level of responsibility associated with that job, the gender differences in earnings may, in part, reflect the influence of such factors.

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**Table 14: Average Earnings differences in 1976**

All prime age workers by gender, educational attainment and job type in 1976

| | | Elite Jobs | Good Jobs | Less-skilled jobs | All |
|---|---|---|---|---|---|
| Males, | Higher Education | $53,500 | $47,300 | $49,300 | $52,800 |
| Females, | Higher Education | $26,500 | $24,200 | $22,600 | $26,300 |
| **Gender Gap*** | | **102%** | **95%** | **118%** | **101%** |
| Males, | Vocational Education and Training (VET) | $42,400 | $28,900 | $27,600 | $31,700 |
| Females, | Vocational Education and Training (VET) | $24,500 | $18,200 | $15,000 | $18,300 |
| **Gender Gap*** | | **73%** | **59%** | **84%** | **73%** |
| Males, | No Post School-Qualifications | $36,500 | $26,600 | $23,200 | $26,500 |
| Females, | No Post School-Qualifications | $20,200 | $18,100 | $14,300 | $16,300 |
| **Gender Gap*** | | **81%** | **47%** | **62%** | **62%** |
| Males, | Total | $43,100 | $27,600 | $23,800 | $29,600 |
| Females, | Total | $24,900 | $18,200 | $14,400 | $17,600 |
| **Gender Gap*** | | **73%** | **52%** | **66%** | **68%** |

**The percent males earn more than females*

Gender gaps were larger in 1976 than 1996. The largest difference occurred between males and females with higher education as their highest qualification attained (64 per cent in 1996 and 101 per cent in 1976).

The largest growth in total earnings for males over the 20 year period occurred in Good jobs (21 per cent), followed by Elite jobs (18 per cent), then Less-skilled jobs (14 per cent). The largest earnings growth rate for females over the 20 year period occurred for Elite jobs (34 per cent), followed by Good jobs (24 per cent), then Less-skilled jobs (14 per cent). A detailed view of the changes in income for males and females at the 21 occupation levels is included in Appendix F.

Interestingly, over the 20 years to 1996 females with post-school qualifications have benefited from larger increases in average earnings, compared to males. In fact, females with post-school qualifications experienced stronger, positive growth in the level of earnings received across all occupations than males with the same qualifications.

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# Conclusion

Terms such as information age, knowledge society and office economy are much talked about and hard to define. Whilst it is clear that work is changing, evidence to date has mostly been anecdotal and industry specific.

This report, perhaps, provides the first Australia wide, Census-based *evidence* of the 'Office economy'. The Office is an area of Australia's workforce that is growing in numbers and attracting a greater slice of educated workers, earnings and 'Elite' jobs. Knowledge workers are in demand because organisations now recognise ideas, design, innovation, marketing, monitoring and management as core business, as well as production.

As Carnevale and Rose observed, the loss of jobs in 'traditional' areas such as the Farm and the Factory is sometimes blamed for modern economic and unemployment problems. But it is important to remember that there is no real link between agricultural (or manufacturing or mining) *employment*, and agricultural (or manufacturing or mining) *production*.

Sluggish or even negative growth in employment has not adversely affected the contribution of the agriculture, mining and manufacturing industries to the Australian economy, but it *is* evidence that the economy is changing shape and form. People are moving out of these traditional industries as options for work diversify. The employment destination of many Australian workers, with 43 per cent of all jobs and around 3.3 million workers, is the Office. The other big growth area is the Counter.

The Office sector is both a *cause* and a *product* of Australia's changing economy.

Since the Office workers' mission is to add value to hard industries such as mining or construction, the Office sector is itself *driving* the productivity push. An army of knowledge workers are earning a living from improving business and service delivery; how to deliver more using less money, deliver more using fewer people, deliver more with improved systems and processes.

At the same time, the Office sector is the *result* of the transformation of Australian industry over the last quarter of this century. A transformation that has occurred because of new technology and production automation, globalisation, scarce resources, competition policy, the elimination of waste and the pursuit of profit. As these developments have improved production, society has become richer, creating more jobs in resource management (as opposed to resource production) and service industries (as people outsource consumer goods and services).

## Where the jobs are

The evidence in this report shows that workers who want to find themselves *in* a job, and especially a *high paying* job, are more likely than ever to be heading into the Office sector.

Almost two thirds of Elite jobs, and over half of all Good jobs, are found in the Office. And access to Elite jobs increases along with educational profile. Here is evidence that people need qualifications to get ahead. The on-again, off-again working lives that Australians will have demand portfolio careers and portfolio training, where skills and knowledge can be added throughout life. In the same way that industry is hiring workers on an as-needs basis, so will workers need to 'buy' skills and education on an as-needs basis.

The rise of the Office is also affecting the distribution of earnings. Office workers are capturing a bigger share of earnings (49 per cent) than their share of employment (43 per cent), and the data suggests that this trend will continue. With an increasing number of Office jobs going to females, the earnings gender gap is narrowing but is still obvious.

The information in this report suggests the following:

- A combination of technology, competitiveness and economic restructuring has caused a revolution in the type of work that people do, the amount that can be produced and the resources needed to do it.
- The '40 hour week for all' is being polarised - into high paying, high education, knowledge working, long hours jobs and low paying, low education, service oriented, part time jobs. The former are mostly found in the Office, the latter are mostly found in the Counter.
- More people work in the Office and their share of the workforce is increasing.
- Education benchmarks are pushing higher, and post-school qualified people are more likely to work in the Office.
- Office workers earn more, and their incomes are climbing further away from average or low paying jobs.

Where, in 1976, 54 per cent of Elite jobs were in the Office, now the figure is 61 per cent. Where 23 per cent of Office jobs were Elite, by 1996 the figure was 39 per cent. Now, more than ever before, more Elite jobs are in the Office, and more Office jobs are Elite. In sheer numbers, but also in education and earnings, knowledge work is 'where the jobs are'.

A more significant implication for vocational education and training is that VET qualifications are not just for the Factory or the Farm - most VET qualified people work in the Office.

In addition, the data proves that people with VET qualifications fare better than those with no post-school qualifications in terms of earnings and job level. People with vocational education and training qualifications have an earnings premium over workers with no post-school qualifications, and a higher percentage are able to access Elite or Good jobs.

# Appendix A: Carnevale and Rose Categories

**Table 15: The occupation group ladder**

| | Occupation (21) Categories | Occupation (8) | Type of Job (3) |
|---|---|---|---|
| 1A | Manager | **Managers, Medical Doctors, and Lawyers** | Elite Jobs |
| 1B | Lawyers/Judges | | |
| 1C | Health Diagnostic Professionals | | |
| 2A | Accountants and Other Management-Related Occupations | **Business Professionals** | |
| 2B | Sales Representatives and Brokers | | |
| 2C | Science-Related Professional | | |
| 3A | Other Health Professionals | **Medical and Educational Professionals and Specialists in Arts and Letters** | |
| 3B | Teachers | | |
| 3C | Arts and Letters Professionals | | |
| 4A | Line Supervisors | **Supervisors** | Good Jobs |
| 4B | Blue collar Supervisors | | |
| 4C | Farm Owners and Managers | | |
| 5A | Technicians | **Skilled Manual Workers** | |
| 5B | Crafts and Repair | | |
| 5C | Police and Firefighters | | |
| 6A | Clerical and Administrative Support | **Clerical and Administrative Support** | |
| 7A | Operatives | **Operatives** | Less-skilled jobs |
| 8A | Salesclerks | **Sales Clerks, Service Workers and Labourers** | |
| 8B | Service Workers | | |
| 8C | Labourers and Helpers | | |
| 8D | Farm Workers | | |
| O | Occupation not stated or inadequately described | **Other** | Other |

**Table 16: The function group ladder**

| | Function Group (15) Categories | Function Groups (5) | Function Group Title |
|---|---|---|---|
| 1A | Extraction production in agriculture, mining, fishing, and lumber | **Extractive Production** | Farm |
| 2A | High wage manufacturing | **Industrial Production** | Factory |
| 2B | Low wage manufacturing | | |
| 2C | Industrial production in public utilities, construction, and transportation | | |
| 3A | Personal services | **Low-Skilled Services** | Counter |
| 3B | Retail services | | |
| 4A | Health care | **High-Skilled Services** | Hospital / Classroom |
| 4B | Education | | |
| 4C | Police and fire fighting | | |
| 4D | Transportation and communication for personal consumption | | |
| 5A | Managers and half of supervisors | **Office** | Office |
| 5B | FIRE | | |
| 5C | Business Professionals | | |
| 5D | Clerical and support labour | | |
| 5E | Public administration and non-profit | | |
| O | Other | **Other** | Other |



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# Appendix B: The US decision rules adopted for creating five functions

1. Where occupations were defined as having a supervisor role, they are divided equally between direct productive work (function class depending on the industry) and managerial/supervisory work, with the managerial/supervisory work assigned to the **Office** function.
2. Extractive production (the **Farm**) includes all the direct labour in agriculture, mining fishing, forestry, and logging. (Under the industry code (ANZSIC), logging is in fact classified among manufacturing industries).
3. Industrial production (the **Factory**) is defined broadly to include all direct labour in manufacturing, construction, public utilities, and transporting and storing goods on their way to market. The non-manufacturing component performed by longshoremen (wharfies), truck drivers, utility line repairers, and warehouse workers are also included in this function because the organisation of work and skill levels are similar.
4. Blue-collar workers employed by temporary service agencies are allocated to the **Factory** function.
5. Low-skilled services (the **Counter**) represent those activities with direct consumer contact that do not require highly specialised training or a large physical capital base. In general, these personal contact jobs can be staffed flexibly by newcomers and part-timers. More than any other function, this category includes the low promotional opportunity jobs where there is little chance for high pay and mobility up a career ladder. There are exceptions, however. Some salesclerks in hardware stores and upscale clothing outlets can earn considerably more than department store clerks. And while entertainment companies are staffed mainly by ushers and ticket takers, they also employ the people on the stage etc.
6. Sales representatives are not included in the **Counter** function because they are business professionals who promote their company's output to other companies. (They are allocated to the **Office** function). This job title should not be confused with salesclerks who sometimes call themselves sales representatives. The "Census bureau" seems to distinguish successfully between the two in that sales representatives earn nearly three times more than salesclerks and also have significantly higher levels of educational attainment.

7. High-skilled services (**Hospital/Classroom**) consist of consumer services that require the effort of more skilled labour. The two major professional services that fall into this category are health care and education. The difference between these services and those in the **Counter** function is reflected in the composition of their workforces. In 1996, only 4 per cent of those in low-skilled services and retail were managers or professionals, and 71 per cent were operatives, service workers, or helpers. Education was the most professionalised of all industries with 84 per cent of those employed being managers or professional and only 11 per cent being among the Less-skilled. The health-care industry was more diverse, as it includes medical doctors and registered nurses as well as licensed practical nurses and orderlies. Nonetheless, the distribution of employment was more professionally oriented than average for the whole economy: 64 per cent of the employment was managerial or professional, another 8 per cent were medical technicians, and 28 per cent were among the 'Less-skilled'.
8. Personal transportation and communication services do not fall easily into either low- or high-skilled services. The physical capital requirements are high, e.g., phone lines, airplanes, trains etc., and these industries employ blue-collar workers with medium skills and moderate pay. Consequently, the 12 per cent of the labour force employed here are allocated to the **Hospital/Classroom**.
9. Another high-skilled service activity is performed by police and firefighters. Because they deal with the public welfare, historically they have been employed within the public sector. In this approach, they were assigned to the **Hospital/Classroom** function, while other public administration workers were placed in the **Office** function.
10. The **Office** function consists of five components:

a) All managers and one-half of line supervisors involved in coordinating and supervising activities in industries producing goods and performing services*
b) Employees in the entire finance, insurance and real estate sector. The output of these industries differ from consumer services and involves managing assets, whether personal or business.
c) Business professionals employed in the managerial hierarchy. There are almost as many employed here as there are in all of finance, insurance and real estate. Most of these workers are sales representatives, accountants, and the like. But there are also 144,000 (out of a total of almost 234,000) science-related professionals who work neither in academia nor in manufacturing firms. There are often computer-related analysts servicing headquarter activities.
d) Employees in public administration and nonprofit social service institutions. These workers perform coordinating functions at the community level.
e) Support staff, primarily clerical and administrative, as well as janitors and other Office help.

* Managers at food service and retail outlets are classified as line supervisors and not managers.

# Appendix C: The relationship of industries and occupations to functions, 1996

**Farm:** Agriculture, forestry and fishing comprised 72 per cent, and Mining 23 per cent, of employment on the Farm. With respect to occupations, 20 per cent of Farm workers were identified as Blue-collar supervisors†, 19 per cent were Farm workers and 18 per cent were Farm owners and managers. An additional 18 per cent were Operatives and 12 per cent were Crafts and repair workers.

**Factory:** Manufacturing accounted for 51 per cent of employment within the Factory. Construction accounted for a further 27 per cent, with Wholesale comprising 12 per cent. For occupations, 37 per cent of Factory workers were Crafts and repair workers, 26 per cent were Operatives, 16 per cent were Labourers and helpers and 5 per cent were Line supervisors.

**Counter:** More than half of the Counter comprises Retail trade (57 per cent). Accommodation, cafes and restaurants accounted for 15 per cent, Health and community service for 9 per cent, Personal and other services made up 8 per cent and Cultural and recreation services 6 per cent of the Counter. Thirty-four per cent of persons working in the Counter were sales clerks, 26 per cent were Service workers and 11 per cent were Line supervisors.

**Hospital/Classroom:** Health and community services made up 41 per cent of employment in the Hospital/Classroom, with education making up 37 per cent. Transport and storage made up 6 per cent, and Communication services comprised an additional 5 per cent. With respect to occupation, 30 per cent of Hospital/Classroom workers were Teachers, 18 per cent were 'Other professionals', 15 per cent were Service workers and 7 per cent were Health diagnostic professionals.

**Office:** Property and business services comprised 22 per cent of employment in the Office, with Government administration and defense accounting for 11 per cent. Manufacturing, and finance and insurance each made up 9 per cent of Office employment with Wholesale trade making up another 8 per cent. By occupations, 33 per cent of Office workers were designated Clerical and administrative support workers, 16 per cent were Managers, and Accountants, and Sales representatives and brokers each made up 8 per cent. Seven per cent of Office workers were Line supervisors, 6 per cent were Blue-collar supervisors and 6 per cent were Service workers.

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* Industry categories are Divisions from ANZSIC.

† Occupations taken from C&R Occ21 – reclassification of ASCO.

# Appendix D: 'Other' response levels

As noted previously in this report, a small 'other' cohort is a feature of most of the data. The Other group represents the people that were unable to be classified by employment, education or earnings criteria. The Other cohort represents people whose response to the question was 'incomplete' or 'inadequately defined' for the ABS to determine the category. The table below provides the actual numbers and percentages of the total group in each year that comprise the Other cohort.

For example, in 1976, 316,700 people (or approximately 5 per cent of the total workforce) were unable to be classified according to their occupation, and in 1996, 153,100 people (or about 2 per cent of the total workforce) were unable to be classified by income level.

A "not known" field is present in most data sets. This has implications on Total calculations, and as such affects percentage calculations involving these fields. This "not known" field has been used in such calculations, but has not been included in the tables and figures – accounting for differences in total calculations.

**Table 17: Other component of each field**

| Field | 1976 | 1981 | 1986 | 1991 | 1996 |
|---|---|---|---|---|---|
| Occupation | 316,700 | 392,700 | 183,000 | 494,000 | 218,200 |
| Education | 634,400 | 404,800 | 650,400 | 603,400 | 531,000 |
| Function Group | 408,600 | 523,800 | 366,200 | 630,400 | 349,300 |
| Job Type | 316,700 | 392,700 | 183,000 | 494,000 | 218,200 |
| Income | 336,500 | 240,000 | 187,000 | 238,800 | 153,100 |

**Table 18: Share of Total occupied by Other for each field**

| Field | 1976 | 1981 | 1986 | 1991 | 1996 |
|---|---|---|---|---|---|
| Occupation | 5% | 6% | 3% | 7% | 3% |
| Education | 11% | 6% | 10% | 8% | 7% |
| Function Group | 7% | 8% | 6% | 9% | 5% |
| Job Type | 5% | 6% | 3% | 7% | 3% |
| Income | 6% | 4% | 3% | 3% | 2% |

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# Appendix E: The eight-way occupational division

**1. Managers, Medical Doctors, and lawyers.**
The earnings of *Managers, Lawyers/Judges, and Health Diagnostic Professionals* reside in the upper rankings of all occupational groups. Lawyers, judges and health diagnostic professionals were the highest earning occupations within Australia during 1996. Despite management being ranked further down the income ladder, they provided the majority of attendants in this group (520,000) with health diagnostic professionals (86,000) and lawyers/judges (35,000) constituting an exclusive component in this category.

**2. Business Professionals.**
*This category includes Accountants and Other Management-Related Occupations, Sales Representatives and Brokers, and Science-Related Professionals.* These categories are among the most diversely skilled, holding a consistent share of education and training.

**3. Medical and Educational Professionals, and Specialists in Arts and Letters.**
Those involved as *Other Health Professionals, Teachers, and Arts and Letters Professionals* are required to be highly skilled and as such demand the highest levels of education. In direct contrast to the first two categories, females dominate this grouping by over 68 per cent.

**4. Supervisors.**
This grouping consists of *Line Supervisors, Blue-collar Supervisors, and Farm Owners and Managers* involved in blue- and white-collar settings.

**5. Skilled Manual Workers.**
The majority of workers within this category possess vocational education and training. Including *Technicians, Crafts and Repairs, and Police and Firefighters,* male workers dominate this category, holding a majority of over 85 per cent.

**6. Clerical and Administrative Support.**
Consisting of *Clerical and Administrative Support,* this category is amongst the lowest average income earners. Despite earnings similar to those of skilled manual workers, this female dominated group (77 per cent) is largely affected by gender differences in average income.

**7. Operatives.**
Workers within this category are prescribed as operating within Less-skilled occupations. In general this group possesses few workers with more than School qualifications. Despite this they are the highest average income earners of the Less-skilled jobs, and even earn more on average than those in clerical and administrative support.

**8. Salesclerks, Service Workers, and Labourers.**
This category holds the majority of the Australian labour force (22 per cent) and the lowest average income earners with $16,927. Made up of *Sales Clerks, Service Workers, Labourers and Helpers, and Farm Workers* this group contains the majority of the workforce with no post-school qualifications (over 30 per cent) and employs the largest number of female workers.

# Appendix F: Additional data

**Table 19: Income differences for the same type of work**

The 15 function groups - income for males and females in 1996.

| | Average annual income | |
|---|---|---|
| | **Males** | **Females** |
| Extractive production | $35,300 | $18,700 |
| High wage manufacturing | $34,000 | $22,600 |
| Low wage manufacturing | $28,400 | $19,100 |
| Industrial production | $31,900 | $20,200 |
| Personal services | $27,300 | $17,700 |
| Retail services | $26,800 | $16,700 |
| Health care | $52,400 | $27,000 |
| Education | $39,000 | $30,300 |
| Police and firefighting | $42,000 | $36,100 |
| Transportation and communication for personal consumption | $36,900 | $28,100 |
| Managers and half of supervisors | $42,600 | $28,600 |
| Finance, insurance and real estate brokers | $53,100 | $28,600 |
| Business professionals | $49,500 | $33,900 |
| Clerical and support labour | $31,100 | $21,300 |
| Public administration and non-profit | $39,700 | $29,200 |
| Other | $29,600 | $18,100 |
| Total | $37,400 | $24,200 |

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**Table 20: Change in income of prime age males with higher education qualifications**

| | Share of Higher Education in 1976 (%) | Share of Higher Education in 1996 (%) | Higher Education Income in 1976 | Higher Education Income in 1996 | Change in Income from 1976 to 1996 (%) |
|---|---|---|---|---|---|
| Manager | 9.8 | 15.4 | $64,900 | $70,300 | 8.3 |
| Lawyers/Judges | 3.9 | 3.5 | $64,400 | $74,400 | 15.6 |
| Health Diagnostic Professionals | 11.9 | 6.9 | $71,800 | $79,400 | 10.6 |
| Accountants and Other Management-Related Occupations | 2.1 | 9.4 | $51,300 | $60,900 | 18.6 |
| Sales Representatives and Brokers | 1.6 | 3.8 | $67,600 | $63,900 | -5.6 |
| Science-Related Professionals | 16.4 | 15.4 | $55,700 | $56,800 | 2.0 |
| Other Health Professionals | 3.8 | 3.1 | $40,700 | $44,100 | 8.3 |
| Teachers | 36.0 | 18.8 | $44,200 | $43,100 | -2.6 |
| Arts and Letters Professionals | 3.5 | 5.1 | $39,600 | $41,400 | 4.5 |
| Line Supervisors | 1.0 | 5.3 | $44,600 | $64,100 | 43.8 |
| Blue-collar Supervisors | 1.0 | 1.4 | $31,200 | $24,700 | -20.8 |
| Farm Owners and Managers | 0.4 | 0.3 | $61,900 | $33,200 | -46.4 |
| Technicians | 1.9 | 1.5 | $51,400 | $46,700 | -9.2 |
| Crafts and Repair | 0.4 | 1.1 | $37,700 | $38,800 | 2.9 |
| Police and Firefighters | 0.1 | 0.4 | $45,500 | $46,300 | 1.7 |
| Clerical and Administrative Support | 3.7 | 3.6 | $49,200 | $42,700 | -13.2 |
| Operatives | 0.3 | 1.4 | $28,200 | $29,400 | 4.2 |
| Salesclerks | 0.2 | 0.7 | $34,800 | $35,000 | 0.5 |
| Service Workers | 1.4 | 1.3 | $59,700 | $26,100 | -56.3 |
| Labourer and Helpers | 0.2 | 0.5 | $26,100 | $27,200 | 4.0 |
| Farm Workers | 0.0 | 0.1 | $28,500 | $22,000 | -22.6 |
| Occupation not stated or inadequately described | 0.6 | 1.3 | $44,600 | $50,000 | 12.0 |
| **All prime age males with higher education qualifications** | **100.0** | **100.0** | **$52,800** | **$55,700** | **5.5** |

*As part of the Australian concordance, teaching and nursing qualifications were reclassified to higher education. As such, the qualifications profile of these occupations will consist only of higher education qualified workers.*

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**Table 21: Change in income of prime age females with higher education qualifications**

| | Share of Higher Education in 1976 (%) | Share of Higher Education in 1996 (%) | Higher Education Income in 1976 | Higher Education Income in 1996 | Change in Income from 1976 to 1996 (%) |
|---|---|---|---|---|---|
| Manager | 0.8 | 6.3 | $46,200 | $51,000 | 10.3 |
| Lawyers/Judges | 0.3 | 1.1 | $40,700 | $57,200 | 40.5 |
| Health Diagnostic Professionals | 2.0 | 3.2 | $53,300 | $54,500 | 2.3 |
| Accountants and Other Management-Related Occupations | 1.3 | 4.3 | $33,700 | $43,200 | 28.1 |
| Sales Representatives and Brokers | 0.1 | 1.5 | $44,600 | $45,300 | 1.5 |
| Science-Related Professionals | 0.6 | 3.1 | $37,900 | $42,600 | 12.5 |
| Other Health Professionals | 37.1 | 24.8 | $22,800 | $29,100 | 27.3 |
| Teachers | 50.4 | 33.5 | $27,200 | $32,500 | 19.5 |
| Arts and Letters Professionals | 1.9 | 6.3 | $30,500 | $34,400 | 12.7 |
| Line Supervisors | 0.2 | 2.4 | $27,000 | $41,100 | 52.3 |
| Blue-collar Supervisors | 0.7 | 1.0 | $18,600 | $19,700 | 5.9 |
| Farm Owners and Managers | 0.0 | 0.2 | $21,400 | $21,700 | 1.6 |
| Technicians | 0.7 | 0.9 | $32,200 | $29,400 | -8.5 |
| Crafts and Repair | 0.0 | 0.2 | $27,300 | $26,000 | -4.8 |
| Police and Firefighters | 0.0 | 0.1 | $38,200 | $39,400 | 3.2 |
| Clerical and Administrative Support | 2.6 | 6.4 | $23,200 | $26,100 | 12.6 |
| Operatives | 0.1 | 0.5 | $16,400 | $21,400 | 30.3 |
| Salesclerks | 0.1 | 0.9 | $14,400 | $20,700 | 43.7 |
| Service Workers | 0.3 | 2.1 | $29,900 | $20,000 | -33.0 |
| Labourer and Helpers | 0.0 | 0.3 | $17,800 | $19,900 | 11.8 |
| Farm Workers | 0.1 | 0.0 | $12,400 | $12,900 | 4.1 |
| Occupation not stated or inadequately described | 0.5 | 0.8 | $18,100 | $30,200 | 66.8 |
| **All prime age females with higher education qualifications** | **100.0** | **100.0** | **$26,300** | **$34,000** | **29.1** |

*As part of the Australian concordance, teaching and nursing qualifications were reclassified to higher education. As such, the qualifications profile of these occupations will consist only of higher education qualified workers.*

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**Table 22: Change in income of prime age males with vocational education and training (VET)**

| | Share of VET in 1976 | Share of VET in 1996 | VET Income in 1976 | VET Income in 1996 | % Change in Income from 1976-1996 |
|---|---|---|---|---|---|
| Manager | 10.4 | 11.1 | $42,000 | $46,900 | 11.5 |
| Lawyers/Judges | 0.3 | 0.1 | $60,000 | $59,300 | -1.3 |
| Health Diagnostic Professionals | 0.4 | 0.4 | $41,600 | $44,700 | 7.5 |
| Accountants and Other Management-Related Occupations | 2.7 | 3.6 | $46,900 | $46,900 | 0.0 |
| Sales Representatives and Brokers | 3.1 | 4.4 | $36,500 | $43,700 | 19.8 |
| Science-Related Professionals | 3.1 | 3.8 | $51,300 | $50,600 | -1.4 |
| Other Health Professionals | 0.4 | 0.1 | $48,400 | $34,000 | -29.7 |
| Arts and Letters Professionals | 1.6 | 1.7 | $26,700 | $32,600 | 22.2 |
| Line Supervisors | 3.3 | 4.8 | $28,700 | $37,000 | 29.0 |
| Blue-collar Supervisors | 12.9 | 9.2 | $24,100 | $25,400 | 5.4 |
| Farm Owners and Managers | 0.4 | 1.0 | $35,800 | $24,600 | -31.4 |
| Technicians | 4.7 | 5.2 | $36,500 | $42,600 | 16.5 |
| Crafts and Repair | 36.0 | 28.9 | $28,700 | $33,800 | 17.9 |
| Police and Firefighters | 0.9 | 1.3 | $36,400 | $40,900 | 12.4 |
| Clerical and Administrative Support | 4.2 | 4.2 | $33,700 | $35,400 | 4.9 |
| Operatives | 6.4 | 9.2 | $28,700 | $31,700 | 10.5 |
| Salesclerks | 1.2 | 1.7 | $27,400 | $29,200 | 6.7 |
| Service Workers | 2.5 | 4.5 | $30,000 | $27,700 | -7.7 |
| Labourer and Helpers | 4.1 | 2.4 | $24,900 | $28,000 | 12.4 |
| Farm Workers | 0.2 | 0.3 | $19,600 | $21,000 | 6.9 |
| Occupation not stated or inadequately described | 1.1 | 2.3 | $27,100 | $34,200 | 26.1 |
| **All prime age males with VET qualifications** | **100.0** | **100.0** | **$31,700** | **$36,000** | **13.7** |

*As part of the Australian concordance, teaching and nursing qualifications were reclassified to higher education. As such, the qualifications profile of these occupations will consist only of higher education qualified workers.*

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**Table 23: Change in income of prime age females with vocational education and training (VET)**

| | Share of VET in 1976 | Share of VET in 1996 | VET Income in 1976 | VET Income in 1996 | % Change in Income from 1976-1996 |
|---|---|---|---|---|---|
| Manager | 5.1 | 8.1 | $27,700 | $34,800 | 25.7 |
| Lawyers/Judges | 0.1 | 0.1 | $39,100 | $39,100 | -0.2 |
| Health Diagnostic Professionals | 0.8 | 1.3 | $23,300 | $33,600 | 44.4 |
| Accountants and Other Management-Related Occupations | 2.3 | 4.3 | $27,000 | $33,700 | 24.7 |
| Sales Representatives and Brokers | 1.3 | 3.6 | $22,600 | $32,500 | 44.1 |
| Science-Related Professionals | 0.2 | 1.2 | $32,800 | $35,900 | 9.5 |
| Other Health Professionals | 2.7 | 1.0 | $25,800 | $28,800 | 11.8 |
| Arts and Letters Professionals | 4.1 | 4.7 | $18,400 | $26,000 | 41.8 |
| Line Supervisors | 3.1 | 5.9 | $20,300 | $27,300 | 34.8 |
| Blue-collar Supervisors | 17.7 | 6.3 | $17,600 | $18,200 | 3.3 |
| Farm Owners and Managers | 0.4 | 1.0 | $17,200 | $20,700 | 20.6 |
| Technicians | 7.0 | 7.0 | $19,900 | $23,300 | 17.1 |
| Crafts and Repair | 2.1 | 1.2 | $17,600 | $22,800 | 29.1 |
| Police and Firefighters | 0.1 | 0.2 | $32,900 | $35,400 | 7.6 |
| Clerical and Administrative Support | 25.0 | 28.1 | $17,800 | $22,800 | 28.4 |
| Operatives | 4.6 | 2.3 | $16,200 | $19,600 | 21.0 |
| Salesclerks | 4.1 | 5.0 | $14,300 | $17,200 | 20.4 |
| Service Workers | 10.1 | 15.3 | $15,500 | $17,400 | 12.6 |
| Labourer and Helpers | 1.6 | 1.2 | $15,900 | $17,500 | 10.6 |
| Farm Workers | 2.1 | 0.3 | $8,200 | $13,100 | 60.8 |
| Occupation not stated or inadequately described | 5.5 | 2.0 | $12,500 | $20,200 | 60.7 |
| **All prime age females with VET qualifications** | **100.0** | **100.0** | **$18,300** | **$23,800** | **30.1** |

*As part of the Australian concordance, teaching and nursing qualifications were reclassified to higher education. As such, the qualifications profile of these occupations will consist only of higher education qualified workers.*

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**Table 24: Change in income of prime age males with no post-school qualifications**

| | Share of NPSQ in 1976 | Share of NPSQ in 1996 | NPSQ Income in 1976 | NPSQ Income in 1996 | % Change in Income from 1976-1996 |
|---|---|---|---|---|---|
| Manager | 8.1 | 8.6 | $39,000 | $45,100 | 15.6 |
| Lawyers/Judges | 0.0 | 0.1 | $59,700 | $49,800 | -16.6 |
| Health Diagnostic Professionals | 0.0 | 0.1 | $49,300 | $47,900 | -2.9 |
| Accountants and Other Management-Related Occupations | 0.2 | 2.3 | $39,500 | $43,200 | 9.4 |
| Sales Representatives and Brokers | 3.0 | 5.4 | $31,500 | $41,800 | 33.0 |
| Science-Related Professionals | 0.3 | 1.6 | $46,900 | $49,900 | 6.4 |
| Other Health Professionals | 0.0 | 0.0 | $33,000 | $31,400 | -4.8 |
| Arts and Letters Professionals | 1.3 | 1.6 | $29,600 | $34,300 | 15.6 |
| Line Supervisors | 5.0 | 6.5 | $28,000 | $34,500 | 23.1 |
| Blue-collar Supervisors | 13.6 | 7.9 | $21,400 | $24,300 | 13.4 |
| Farm Owners and Managers | 1.0 | 2.6 | $23,200 | $24,200 | 4.3 |
| Technicians | 1.2 | 1.4 | $33,200 | $38,500 | 16.2 |
| Crafts and Repair | 12.3 | 9.0 | $26,500 | $31,900 | 20.4 |
| Police and Firefighters | 1.1 | 1.5 | $36,300 | $42,000 | 15.7 |
| Clerical and Administrative Support | 10.8 | 8.1 | $31,000 | $33,200 | 7.2 |
| Operatives | 14.1 | 20.4 | $24,000 | $28,300 | 18.2 |
| Salesclerks | 2.8 | 3.5 | $25,100 | $27,400 | 9.2 |
| Service Workers | 4.5 | 6.7 | $25,000 | $23,100 | -7.6 |
| Labourer and Helpers | 16.9 | 7.8 | $22,200 | $25,000 | 12.6 |
| Farm Workers | 1.7 | 1.3 | $17,800 | $19,900 | 11.7 |
| Occupation not stated or inadequately described | 1.8 | 3.6 | $22,700 | $27,700 | 21.8 |
| **All prime age males with no post-school qualifications** | **100.0** | **100.0** | **$26,500** | **$31,600** | **19.2** |

*As part of the Australian concordance, teaching and nursing qualifications were reclassified to higher education. As such, the qualifications profile of these occupations will consist only of higher education qualified workers.*

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**Table 25: Change in income of prime age females with no post-school qualifications**

| | Share of NPSQ in 1976 | Share of NPSQ in 1996 | NPSQ Income in 1976 | NPSQ Income in 1996 | % Change in Income from 1976-1996 |
|---|---|---|---|---|---|
| Manager | 1.8 | 5.0 | $23,000 | $29,600 | 28.7 |
| Lawyers/Judges | 0.0 | 0.0 | $26,400 | $36,300 | 37.3 |
| Health Diagnostic Professionals | 0.0 | 0.1 | $26,600 | $30,700 | 15.6 |
| Accountants and Other Management-Related Occupations | 0.2 | 2.4 | $21,800 | $31,500 | 44.4 |
| Sales Representatives and Brokers | 0.7 | 2.7 | $17,500 | $28,400 | 62.7 |
| Science-Related Professionals | 0.0 | 0.5 | $27,600 | $35,900 | 29.8 |
| Other Health Professionals | 0.1 | 0.1 | $17,700 | $19,400 | 9.5 |
| Arts and Letters Professionals | 1.1 | 1.5 | $16,600 | $23,300 | 40.3 |
| Line Supervisors | 3.0 | 6.4 | $19,200 | $24,000 | 24.9 |
| Blue-collar Supervisors | 14.5 | 5.3 | $17,100 | $18,600 | 8.9 |
| Farm Owners and Managers | 0.3 | 1.2 | $13,500 | $20,000 | 48.3 |
| Technicians | 1.5 | 1.1 | $17,300 | $24,200 | 39.8 |
| Crafts and Repair | 2.4 | 1.0 | $16,800 | $19,900 | 18.4 |
| Police and Firefighters | 0.0 | 0.2 | $27,700 | $35,500 | 28.4 |
| Clerical and Administrative Support | 27.7 | 32.4 | $18,700 | $22,000 | 17.7 |
| Operatives | 8.1 | 5.3 | $16,100 | $18,600 | 15.4 |
| Salesclerks | 8.5 | 9.8 | $13,700 | $15,900 | 15.7 |
| Service Workers | 16.6 | 17.1 | $13,500 | $15,000 | 10.9 |
| Labourer and Helpers | 5.7 | 4.2 | $15,900 | $17,300 | 8.9 |
| Farm Workers | 2.3 | 0.6 | $8,600 | $13,800 | 59.6 |
| Occupation not stated or inadequately described | 5.4 | 3.1 | $11,400 | $17,000 | 48.3 |
| **All prime age females with no post-school qualifications** | **100.0** | **100.0** | **$16,300** | **$20,400** | **25.1** |

*As part of the Australian concordance, teaching and nursing qualifications were reclassified to higher education. As such, the qualifications profile of these occupations will consist only of higher education qualified workers.*

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**Table 26: Average earnings of prime age males by job type and education**

| | Elite Jobs | Good Jobs | Less-skilled jobs | Total |
|---|---|---|---|---|
| **Higher Education** | | | | |
| 1976 | $53,500 | $47,300 | $49,300 | $52,800 |
| 1981 | $53,800 | $45,600 | $48,900 | $52,600 |
| 1986 | $53,300 | $43,100 | $33,200 | $52,000 |
| 1991 | $57,600 | $50,600 | $28,800 | $55,800 |
| 1996 | $58,200 | $49,100 | $28,900 | $55,700 |
| **Vocational Education and Training (VET)** | | | | |
| 1976 | $42,400 | $28,900 | $27,600 | $27,100 |
| 1981 | $46,500 | $32,200 | $31,100 | $35,000 |
| 1986 | $45,900 | $31,400 | $30,000 | $34,700 |
| 1991 | $46,200 | $33,200 | $29,300 | $35,300 |
| 1996 | $45,900 | $33,600 | $29,800 | $36,000 |
| **No Post-School Qualifications** | | | | |
| 1976 | $36,500 | $26,600 | $23,200 | $26,500 |
| 1981 | $40,300 | $30,200 | $25,700 | $29,400 |
| 1986 | $41,300 | $28,600 | $26,000 | $29,400 |
| 1991 | $43,500 | $30,300 | $26,300 | $30,700 |
| 1996 | $43,500 | $31,100 | $26,400 | $31,600 |
| **Total** | | | | |
| 1976 | $43,100 | $27,600 | $23,800 | $29,600 |
| 1981 | $47,000 | $31,100 | $26,700 | $32,600 |
| 1986 | $47,300 | $30,000 | $26,700 | $33,700 |
| 1991 | $50,500 | $32,700 | $26,900 | $36,200 |
| 1996 | $50,700 | $33,500 | $27,300 | $37,400 |

**Table 27: Average earnings of prime age females by job type and education**

| | Elite Jobs | Good Jobs | Less-skilled jobs | Total |
|---|---|---|---|---|
| **Higher Education** | | | | |
| 1976 | $26,500 | $24,200 | $22,600 | $26,300 |
| 1981 | $28,200 | $26,600 | $23,900 | $28,000 |
| 1986 | $29,500 | $24,800 | $21,600 | $29,100 |
| 1991 | $33,300 | $28,300 | $20,600 | $32,400 |
| 1996 | $35,300 | $28,900 | $20,300 | $34,000 |
| **Vocational Education and Training (VET)** | | | | |
| 1976 | $24,500 | $18,200 | $15,000 | $12,500 |
| 1981 | $25,500 | $20,700 | $16,000 | $19,900 |
| 1986 | $30,200 | $19,900 | $15,600 | $20,700 |
| 1991 | $32,900 | $22,600 | $16,900 | $23,000 |
| 1996 | $32,300 | $22,900 | $17,500 | $23,800 |
| **No Post-School Qualifications** | | | | |
| 1976 | $20,200 | $18,100 | $14,300 | $16,300 |
| 1981 | $22,500 | $20,000 | $15,000 | $17,200 |
| 1986 | $25,800 | $19,100 | $14,800 | $17,600 |
| 1991 | $28,400 | $21,500 | $15,400 | $19,200 |
| 1996 | $29,100 | $21,900 | $16,000 | $20,400 |
| **Total** | | | | |
| 1976 | $24,900 | $18,200 | $14,400 | $17,600 |
| 1981 | $26,900 | $20,200 | $15,100 | $18,700 |
| 1986 | $29,000 | $19,400 | $14,900 | $20,100 |
| 1991 | $32,300 | $22,100 | $15,700 | $22,500 |
| 1996 | $33,400 | $22,500 | $16,400 | $24,200 |

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